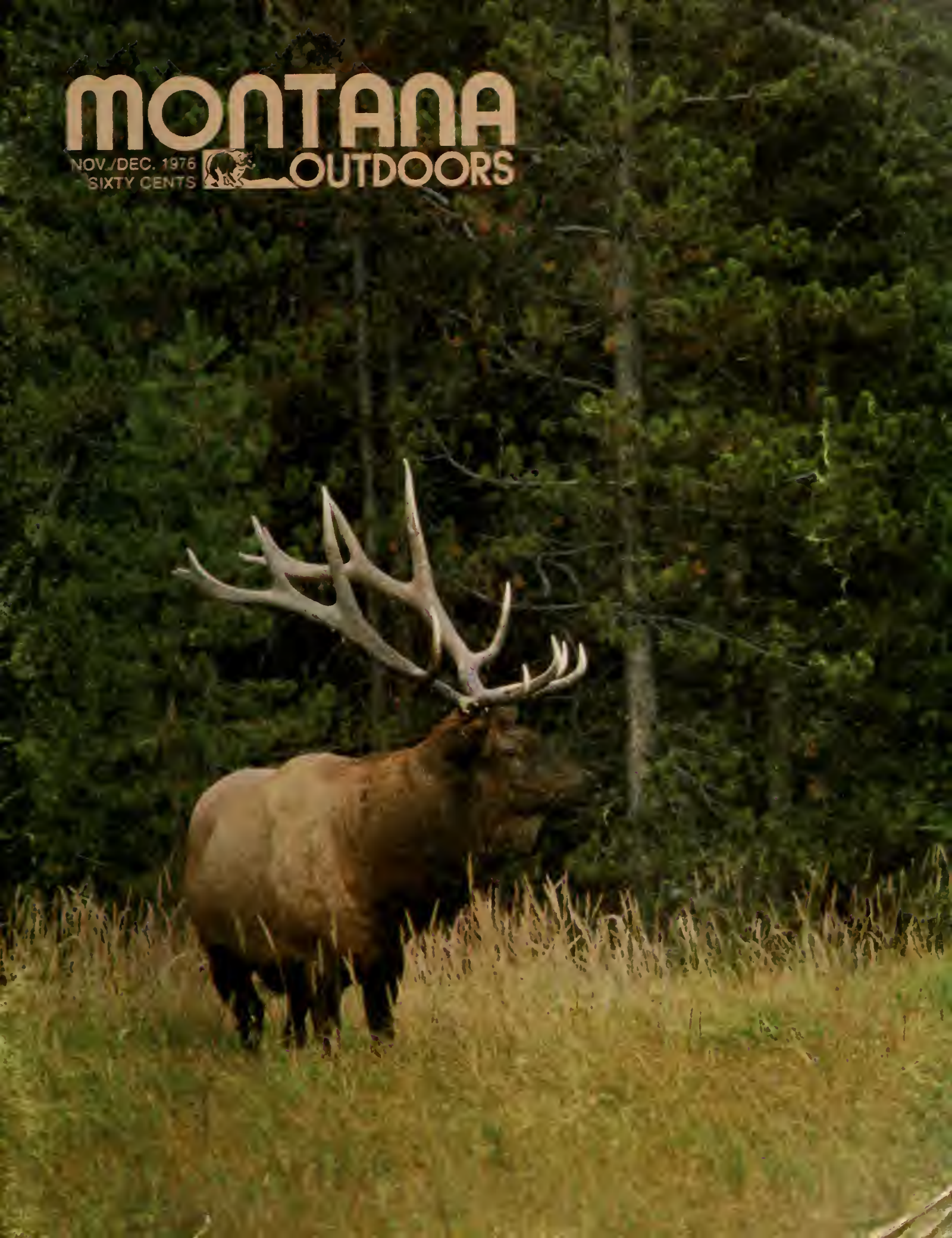
MONTANA OUTDOORS

NOV./DEC. 1976
SIXTY CENTS



Thomas L. Judge/*governor,*
State of Montana

Willis B. Jones/*chairman,*
Fish and Game Commission

Commission members:
Joseph J. Klabunde/*vice chairman*
Arthur C. Hagenston
Spencer S. Hegstad
Dr. W. Leslie Pengelly

Dept. of Fish and Game
Wes Woodgerd/*director*
Fletcher E. Newby/*deputy director*

James A. Posewitz/*administrator*
Environment and Information Division

Steve Bayless/*chief*
Information Bureau

Bill Schneider/*editor*
Kay Ellerhoff/*associate editor*
Marty Beatty/*circulation director*
Donita Sexton/*art director*
Vern Craig/*artist*
Tom Warren/*photographer*
Craig Sharpe/*photographer*

THE COVER: An elk's life can be tough—especially during severe winters and in areas where prime habitat has fallen into commercial use. Turn to John Cada's article on page 2 for a detailed description of the elk's life and to Bill Schneider's article on page 38 for a close look at the Elkhorn Mountains controversy. By knowing what deer eat, hunters will have a better understanding about deer and their relationship to their environment. For details on the deer's diet, turn to page 19 for Gary Dusek's article. Front and back cover photos: Bill McRae

ASHTON'S BUTTE

MONTANA OUTDOORS
Nov./Dec. 1976, Vol. 7, No. 6

contents

2 **it's an elk's life**
each season brings changes and challenges. by john cada

10 **land use practices mean fewer pheasants**
pheasants in the yellowstone valley are losing ground. by bill pryor

15 **the catchall**
"coyotes and deer" by steve bayless, plus updates on the beaver creek south court decision and container legislation

19 **what deer eat**
knowing which plants deer find palatable can be handy knowledge for any hunter. by gary dusek

25 **editorial**
dr. charles jonkel explains what is meant by "critical" grizzly habitat

27 **montana outdoors index**

29 **dear f&g**

31 **where have all the deer gone?**
deer populations are down throughout the western u.s. department studies may shed some light on the reasons why. by glenn oakley

34 **the rock creek mine**
a proposed cyanide leaching plant and mine have gone almost unnoticed—until now. by glenn oakley

38 **the elkhorns**
a historic playground becomes a modern-day battleground as environmentalists and industrial concerns choose up sides. by bill schneider

Montana Outdoors, the official publication of the Montana Dept. of Fish and Game, is published six times each year (January, March, May, July, September and November). Contributions (manuscripts or illustrations) are welcome with the understanding that the department or the editor cannot be responsible for loss or damage. All contributions will be published at the discretion of the editor. Subscription rates are $3 for one year, $5.50 for two years, $8 for three years and $2.50 for each additional year. Individual copies are available at newsstands and regional department offices. Price per copy is 60 cents. Although *Montana Outdoors* is copyrighted, permission to reprint articles is available by writing our office or phoning us at 406/449-2474. All correspondence should be addressed: *Montana Outdoors,* Dept. of Fish and Game, 1420 E. Sixth; Helena, MT 59601. ©Montana Dept. of Fish and Game. All rights reserved.

Postmaster: *Montana Outdoors* is entered as second class mail in Helena, MT 59601. Additional entry is in Butte, MT 59701.

license drawing explained

a livable environment for WILDLIFE is a quality environment for MAN

By the time this issue reaches you, annual big game hunting seasons will be in full swing and hunters will be afield throughout the state. For most sportspersons, it all started early last summer with the filling out of an application for a moose, goat, antelope, either-sex elk or special deer permit.The applications had to be postmarked no later than midnight on July 1. I suppose that deadline date annually marks the beginning of serious planning by most sportspersons for fall hunting seasons.

For the department, however, such planning is a year-round process which eventually involves practically all our personnel. Field surveys, work with landowners and Fish and Game Commission action on department and public recommendations for the seasons result finally in a set of season dates for each species and a permit quota where called for. Although applications for special permits had to be sent to Helena no later than July 1, actual permit drawings were conducted by the Data Processing Division of the state's Dept. of Administration in July and August.

In past years, these drawings have received some criticism. Detailed forms to fill out, deadline dates and unsuccessful applications year after year certainly seem unfair to some. To others, it all adds up to a mountain of "bureaucratic red tape."

With these things in mind, we decided to try something new this year. We invited a cross-section of license buyers from around the state to our Helena office during late July, just prior to the actual drawings for moose, sheep and goat permits. Our intent was to actually show them firsthand how the drawing process worked, from the day a license application is filled out and mailed to Helena until its selection or rejection by the data processing machines. We wanted them to gain firsthand knowledge of the process so they could relay this information back to their respective clubs and fellow sportspersons. But we also wanted their honest but critical appraisal of our drawing process and what they thought we could do to make improvements.

Department people and employes of the Data Processing Division explained the process in detail and discussed existing and potential problems. They then conducted the group through the computer and key punch rooms to show them how the process actually worked.

As the "short course" on the drawing procedures ended, one sportsman remarked that it would be ". . . virtually impossible . . ." for anyone to cheat. Another said there could be ". . . no monkey business with this system."

All in all, we felt the day of effort to explain our license drawing process to those in attendance was definitely a success and time well spent. In the future, we plan to continue this type of people-involvement program. It will definitely help us do a better job and, hopefully, it will give everyone interested a better understanding of this important department function.

The drawing of a moose, bighorn sheep or mountain goat permit could be a once-in-a-lifetime event and therefore assumes a great deal of importance. I assure each of you that your application will receive the same impersonal machine treatment as mine.

Wes Woodgerd

Wes Woodgerd, Director
Department of Fish and Game

photo: Jerry Manley

photo Bill McRae

IT'S AN ELK'S LIFE

by John Cada

An eerie, rising whistle breaks the quiet of the mountain forest. A chipmunk pauses in its foraging through pine needles. The bright yellow eyes of an owl flash open at the trill sound. As an angry reply comes back echoing off the canyon walls, another chapter in the life of an elk begins.

The bugling elk have survived through many chapters tried and tested by the seasons, to once again reach the rut—the time of year when the species is renewed. But each season brings changes in the elk's behavior, physiology and habitat use.

For elk, spring is probably the most welcome season. Winters, long and severe, leave elk lean and weakened. Spring offers a fresh start for winter's survivors and life's beginning for calves. The remarkable success elk have in calving is largely attributed to the time and place of calving, the calf's rapid adaptability and the mother's protective instincts.

Elk do not choose when calves are born, but cows

continued

are "physiologically programmed" to calve about June 1. Elk have become biologically adapted to this calving date because of survival advantages for the calves. Occurring late enough in the spring, the chance of storms and adverse weather is decreased. Also, abundant spring vegetation provides cows with a much-needed nutritional boost to prepare for the demands of calving and nursing. Yet, June 1 is still early enough to give the calf sufficient time to grow and physically prepare for winter.

The cow instinctively knows where the calf will be best protected. Newborn calves are found usually in grassy shrub parks near the timber's edge. The calf nestles in or near a clump of dried grass and often near taller scrubby plants. The vegetation shields the calf from the harshness of spring weather and hides it from the keen eyes of ever-present predators. To help dispel the chill of spring, the cow situates the calf on a slope facing south or west to take advantage of the warming sun.

Cows commonly calve on the fringes of elk winter range. However, elk that migrate considerable distances from winter to summer range may calve en route. Migratory elk apparently know the locations along the migration route suitable for calving. Elk linger in these spots and move rapidly across the unsuitable portions in between. The snow melt determines how far the cows advance before they stop to calve. Thus, migratory elk rarely calve in the same location, although they may usually calve along the same route year after year.

A typical example of this behavior occurred in calving locations of elk which wintered on the Bear Creek Game Range (near Cameron, Mont.) during the winter of 1975-76. Winter weather prevailed well into spring of 1975 and all elk on the game range calved in the vicinity of their winter range. But in 1976 spring came earlier than usual, opening up the mountain passes along the migration routes. Consequently, nearly all migratory elk that wintered in Bear Creek moved to Gallatin Canyon to calve. This represented a movement of 10-20 airplane miles and necessitated crossing an 8,500-foot pass.

Although the newborn calf is quite defenseless, it possesses several unique compensating adaptations. The calf's coloration naturally camouflages it. Its basic light brown color is broken up with a black stripe along the back and rows of white speckles along the sides, allowing it to blend in with natural surroundings. When new, it has very little odor; in fact, its scent is so slight that the keen nose of a hunting dog can detect it only when within a few feet. When another animal approaches, the calf instinctively lies motionless with its head flat to the ground and its ears back. In the mother's absence, it would be just happenstance that a predator would stumble onto the calf.

If the calf were located and attacked, it would let out a high-pitched squeal that would not only rouse the mother but also other adult cows in the vicinity. The mother spends little time in the immediate area of the calf, but usually feeds and beds within its sight. She will come to the calf's defense without a moment's hesitation against any threat, except that of man. Even the mighty grizzly may be challenged by the cow if it poses a threat to the calf. This is not to say that predation does not occur; it does, in spite of the cow's formidable efforts.

The "helpless" stage in an elk's life is short. New calves walk unsteadily the first day, run short distances by the second and are good runners in three or four days. A newborn calf weighs from 30-35 pounds, about the size of a lanky pointer hunting dog. In six months, its weight increases eight or nine times to about 300 pounds and it will be about two-thirds the size of an adult cow. An adult cow weighs from 450-600 pounds, while adult bulls weigh from 600-900 pounds.

Winters, long and severe, leave elk lean and weakened. But spring offers a fresh start.

After about a week, the calf is physically able to keep up with its mother and they spend more and more time together. When the calf is two weeks old, the cow and calf remain together continuously and they regroup with other cows and their calves. The calf no longer attempts to remain hidden at the approach of danger but jumps to its feet and flees with the others. Now, migration can continue. However, they commonly remain in the calving area during all of June before progressing on toward summer range if they are not disturbed and if the habitat conditions remain suitable.

Bulls remain separate from cows and calves during spring. They show no responsibility in calf rearing and are free to roam around and feed on succulent shoots of spring grasses. However, bulls are not free from energy demands on their systems. The previous year's antlers, lost during the winter, are being replaced and rapid antler growth requires great energy. The travel pattern of the bulls resembles that of the cows except they are not slowed by calving and nursing. Consequently, bulls usually arrive at the summer range first.

Elk summer in drainage heads and alpine basins with luxuriant vegetation. Weedy plants, the preferred summer forage for elk, are succulent and abundant. Although summer is probably the easiest time of the year for elk, it is also one of the most important. Elk approach summer in relative-

climatic conditions, the physical characteristics of the habitat and the type and supply of forage all affect its availability.

Vegetation (timber) provides cover which not only shields the animals from the energy-robbing cold and persistent winds but can also collect and radiate heat to elk. As an example, elk often seek out bedding sites near the bases of large trees to absorb the sun's radiated and reflected warmth. Cover also provides security and enables elk to escape and hide from predators.

Even under the best conditions, winters are never easy. Consequently, the elk's body condition at the onset greatly influences its ability to endure winter. In fact, all elk lose 20-25% of their body weight by spring. For a 600-pound cow, that means a loss of about 150 pounds—even though she has a growing fetus.

Factors contributing to the health and condition of elk at the onset of winter are: condition of the summer range, age and sex, the incidence of infections caused by disease and parasites and the inherent strength of the elk. The elk most likely to survive a harsh winter would be a three- to nine-year-old cow, relatively free of disease and parasites, which summered on good range and was an inherently healthy elk.

Natural loss in the wildlife world is not pleasant, but it is a vital process which insures a population's survival as a wild and well-adapted species. Although hunting controls populations, some additional natural loss cannot be avoided and it benefits the population. These seemingly harsh and cruel natural processes, most evident in winter, cull the diseased, the parasite ridden and the genetically inferior elk, leaving the strong and healthy animals to perpetuate the species. Since environmental conditions vary from year to year, natural losses range from a few to noticeable numbers. However, losses are never so great that they severely decimate the population. Certainly the reason elk are the hardy, magnificent species they are today is because this selective process goes on every day of their lives.

With winter's welcome end, another chapter in the life of the elk is complete. It is a chapter in a book that began thousands of years ago and never need end. If elk can depend on our society to preserve their natural environment, then we can depend on elk to remain a part of our wild lands.

"It's an Elk's Life" and it begins in the spring. Summer offers succulent and abundant forage for elk and they begin the long preparation for winter's demands. Fall is the time of the rut, when harems are acquired or defended. Bitter winter temperatures magnify the elk's problems of getting food by requiring greater energy consumption just to maintain adequate body heat. Turn to page 2 for **John Cada's** article. The department's game management biologist at the Gallatin Game Range, Cada holds B.S. and M.S. degrees in fish and wildlife management from Montana State University, Bozeman.

If Yellowstone County is a valid example, certain "Land Use Practices Mean Fewer Pheasants." Ring-necked pheasants in Yellowstone County hunters' bags have declined—by about 90% over the past 16 years. This and other conclusions emerged from a five-year study evaluating land use practices over the last twenty-five years in the Yellowstone Valley. The article, written by **Bill Pryor,** has been adapted from the final completion report of the project, which was directed by H. O. "Buck" Compton, Region 5 (Billings) game manager. Pryor is the department's information officer for the Billings region. The article starts on page 10.

A main course of yellow sweetclover topped off by some skunkbush sumac might not be your idea of dinner. But if you were a deer, you might have a different notion. As **Gary Dusek** points out in "What Deer Eat," no single plant offers a complete diet. But knowing which plants deer find palatable can be valuable knowledge for any hunter. Turn to page 19 for Dusek's article, accompanied by photos of 12 of the deer's favorite plant species. Dusek is a wildlife biologist for the department, currently working out of Baker. He will do a planning inventory on uranium in the Long Pines area. He recently completed a similar study related to coal development in the Bull Mountains. He holds B.S. and M.S. degrees from MSU in fish and wildlife management.

Before his departure in late August, *Montana Outdoors'* summer intern **Glenn Oakley** contributed two articles to the Nov./Dec. issue. "Where Have All the Deer Gone?" is a lament heard when hunters get together, across dinner tables, in sportsmen's meetings—everywhere. In fact, not only Montana is involved; deer populations are down throughout the entire western United States. Many diverse factors—subtle, obvious, natural, influenced by man—are involved. Turn to page 31 for a discussion of the deer's future. A cyanide leaching operation and mine sprang up virtually unnoticed last summer not far from Sluice Gulch near Missoula. Perhaps you're thinking, "Why, I've never heard of Sluice Gulch." Many folks haven't. But about 1½ miles from the leaching site, Sluice Gulch flows into Rock Creek, one of Montana's finest blue ribbon trout streams. Although work on the operation has temporarily stopped, it's hard to predict what will happen next. Turn to "The Rock Creek Mine" on page 34. Oakley has returned to his senior year in journalism at the University of Montana, Missoula. He is a photographer for the Montana Kaimin, UM's student newspaper.

Land Use Practices Mean Fewer Pheasants

by Bill Pryor

"Seems like there used to be more," Carl sighed to his partner as the two pheasant hunters walked back to their truck in the evening light.

"There were!" Jack replied, cradling his side-by-side in the crook of his elbow. "In the '50s, this Yellowstone River bottom had pheasants in every cattail stand."

"Maybe that's it. We took too many during those good years," Carl continued, casing his gun and dropping his old canvas hunting jacket in the bed of the pickup.

"I don't know. Been a lot of changes in this valley since we first hunted here," speculated Jack as he pulled two cock pheasants from the game pouch of his jacket. "We didn't get skunked, but I think if the birds had just been managed differently. . . ."

So it goes with debates like this between sportsmen, Dept. of Fish and Game wildlife managers, landowners and others who like to hunt or just see the ring-necked pheasant in places where it used to be much more plentiful.

Ring-necked pheasants in Yellowstone County

continued

hunters' bags *have* declined—by 90% during the past 16 years. Dept. of Fish and Game researchers spent five years (1971-75) evaluating land use practices over the last twenty-five years in the Yellowstone River Valley. They concluded reasons for this decline surely involve farming methods and large commercial, industrial and residential growth since the 1940s.

The exotic Chinese bird was stocked in several areas of Montana in the early 1900s. As with other introductions of exotic species across the United States, pheasant populations shot upward, leveled off and then declined, except in places which suited the birds' needs.

One of these suitable spots was the Yellowstone River Valley. Backwater marsh vegetation and brush lining waterways offered pheasants escape cover, food patches, winter protection and nest sites.

Farming economics and/or practices of the '40s and '50s built the home and set the table for the ringneck. Fence rows thick with brush and briars, weedy field corners that plows couldn't reach and small fields with plenty of weedy borders running between them were the furnishings of the pheasant home.

Pheasants are so closely tied to farm lands, they figuratively ride the wheel guard of the farmer's tractor. Every sway, bump and swerve of a farm's progress is felt by the pheasants that live on that land, too.

Pheasant populations fare well, stay the same or crash depending on land use. A case in point is South Dakota, once pheasant capital of this country. In South Dakota, habitat—or lands where pheasants thrived—has been mowed, plowed and converted to grazing land and crop acreage. Soybeans and corn now blanket former weed and brush areas. Clean farming, intensive grazing, marsh and pothole drainage and herbicide use eliminated many critical cover areas for pheasants.

In 1957, South Dakota's preseason estimate statewide was a population of 11.1 million pheasants. Last year—1975—this estimate was down to 2.1 million, with much of this decline blamed on loss of suitable habitat.

The Yellowstone Valley, which raised the pheasants of Carl's and Jack's memories, has changed over the past few years, too.

"In the quarter century from the late '40s until today, you can plot the reduction of pheasant-rearing land, and we've done it," says H. O. "Buck" Compton, Region 5 (Billings) game manager for the department.

It's difficult to string together each recollection of a fence row taken out or a subdivision put in to make up a 25-year memory that rings true. But, researchers for the department's Game Management Division have painstakingly done just that, after poring over countless records about this area.

"Field workers have been on this Yellowstone River Valley project for the past five years," Compton explains. Several department employes studied Yellowstone County land use patterns from the late '40s through the present. Pheasant numbers have consistently gone down in the county and we think land use changes are the key reason," Compton stated.

The area of investigation stretches 50 miles from Pompeys Pillar on the Yellowstone River, westward along the river to Stillwater and Carbon County lines. Extending back from the river north and south on the flood plain, the study area encompasses 206 square miles, or 132,000 acres. Communities within the region include Billings, Laurel, Huntley, Worden, Ballantine, Nibbe and Shepherd. Portions of U.S. Highway 312 and Interstate 90 run through the area and numerous graded roads, usually following section lines, permit access to all parts of the area.

The country is semi-arid and receives about 13 inches of rainfall annually. It supports pheasants only because moist, brushy bottom lands are present. About 90,000 acres is irrigated, with 340 miles of irrigation ditches lacing through the land.

Corn, sugar beets and alfalfa are the major crops. (The corn is used chiefly for silage to raise cattle on the county's 40 feed lots.)

People pressure in the study area has increased from 47,900 in 1950 to 77,000 in 1970, an increase of nearly 30,000 persons. Billings alone has increased from 31,800 persons in 1950 to 61,500 in 1970.

Twenty-five years is a long time and researchers had to isolate a common thread that ran from beginning to end. This factor would be used to compare land use now with how it used to be. A cover map of the brush areas and farm field sizes was found in a 1948-49 U.S. Fish and Wildlife Service River Basin report. It showed which lands had pheasant cover and how much.

For comparison, a present-day map was put together, using aerial photographs, farm crop reports, Agricultural Stabilization and Conservation Service (ASCS) personnel interviews and Soil Conservation Service land use maps.

Comparing the two maps reveals some startling facts. As if it were green ink blotted up from a page, between 1948 and 1972 green belts of timbered river bottom lands were cleared to make way for larger and cleaner farm fields. Timbered brush land was eliminated from the pheasant's home.

Forgotten fields and pasture lands, where pheasants lived and nested, also disappeared. Now, in their place are cleared, irrigated fields. Of the 41,500 acres studied, 24,000 was irrigated in 1948. By 1972, 32,500 acres was irrigated—an increase of 20%.

Pheasants lost additional ground as the face of irrigation ditches changed. After gathering information from 15 irrigation companies, researchers concluded ditch banks are cleaner today. Some are burned or grazed which eliminates cover and

THE CATCHALL

Coyotes and Deer

Recent information from Dept. of Fish and Game studies in several areas of the state adds to knowledge about coyote predation on deer. The information comes from a "progress report" on results of a coyote and deer research project under way by the department.

Generally, preliminary results show that coyotes did, in fact, affect the deer population in one study area during the year. However, Wynn Freeman, administrator of the department's Game Management Division, cautions that, "It is important not to generalize about the coyote situation." According to Freeman, "While it is probable there are problems in some areas such as a portion of the Missouri Breaks, we know we do not have problems in others, such as the deer study area north of Terry."

In 1975, the Fish and Game Commission decided to embark on studies in several different parts of the state. Problems with declining deer populations are common throughout the West and the reasons most likely include a combination of factors. According to Freeman, "We have always known that coyotes prey on deer. This is a natural thing, and nothing to be concerned about if you have healthy deer populations. But during a period of time when we have low deer populations, the question is, what is the additive effect of coyote predation on deer?"

Freeman said early winter aircraft surveys in the Missouri River Breaks during the past five years showed low to moderate mule deer fawn survival and/or production. The first two years of low fawn numbers, 1971-72 and 1972-73, most likely resulted directly from the severe winter of 1971-72. A moderately low ratio for 1973-74, according to Freeman, may have resulted partially from "lag effects" of that severe winter. However, during the last two years, despite four consecutive years of good conditions for deer production and survival, Freeman noted that fawn survival has remained low.

In June and July of both 1975 and 1976, Freeman said surveys disclosed "very good" fawn production and survival in the Breaks area. But by mid-October 1975, the ratio was down to 40 fawns per 100 adults on the south side of the river and the ratio further dropped to 37 per 100 in December. By March 1976, the ratio had declined to 11 fawns per 100 adults. In the Nichols Coulee area north of the river, the ratio was 34 fawns per 100 adults in October and 21 per 100 in December. The ratio had declined to 5.5 per 100 by March 1976. In the Nichols Coulee area, adults were lost as well as fawns, Freeman noted.

The Nichols Coulee Resource Conservation Area includes an area devoted to rest rotation grazing management by the Bureau of Land Management. Here, total mule deer numbers declined 45% between December and March. Of interest, Freeman says, is the fact that deer numbers changed little in the "rest" pasture where there were no livestock. This is not a criticism of livestock grazing, but it does point out that wildlife populations are affected by man's activities in rather subtle ways.

The first actual coyote-killed deer was found on Dec. 7, 1975 during a helicopter survey. From then until March 30, 1976, 66 coyote-killed deer were located, with predation most obvious during periods of complete snow cover and colder temperatures. Field workers were unable to determine if deer were more vulnerable during severe weather, or if coyotes turned more to deer for food because of the unavailability of small mammals due to snow cover and inactivity. Freeman noted that answers to these and other questions should come as the study progresses.

Carcasses of coyote-killed deer didn't last long. On Dec. 12, 1975, field workers saw five or six coyotes eat, dismember and carry off essentially an entire adult white-tailed doe in three to four and one-half hours. According to Freeman, information shows that coyotes can kill deer at the same or greater frequency in the uplands as they do on the ice of Fort Peck Reservoir. But again, Freeman cautions about jumping to conclusions. High fawn and adult mortality over the winter indicates a substantial impact by coyotes on deer in the Nichols Coulee area of the Breaks, but two early winter helicopter surveys show this high mortality to be an exception. In fact, Freeman said the mule deer population was stable between December 1974 and December 1975 in spite of heavy predation.

On another study area north of Bozeman, Freeman stated that fawn/adult ratios in September and October of 1975 were already low when researchers began field work. January helicopter surveys revealed the ratio had declined to 22 fawns per 100 adults, and by March, it was down to 10 per 100. Although department field biologists declined to attribute the total decline to coyotes, Freeman said they were "...definitely responsible for some of it." Several coyote-killed deer were found during the winter, and six of eight coyotes killed by aerial gunners on the area during January and February 1976 had deer remains in their stomachs.

In summarizing results of the coyote research study so far,

continued

SPRINGBOARD

"I'm too old for backpacking and getting out to enjoy the forests but I have grandchildren and hope to have great grandchildren who will know God's creations because they have seen and heard and felt them for themselves.

"But if your policies of development of the wilderness areas proceed much further, they won't be able to. I hope that, acting for them, you keep all the wilderness areas we now have, starting with the Elkhorns." —*from a letter to James R. Jordan, superviser of the Helena National Forest, in response to the final environmental statement on the Elkhorn Planning Unit. (See the Elkhorn article on page 38.)*

FOR DISCUSSION

recycled paper

Freeman noted similar results have been documented in Oregon. In addition, Montana's coyote population is about average among the 17 western states, based on U.S. Fish and Wildlife Service surveys. These surveys show that coyotes declined slightly from 1974 to 1975 and continued to decline going into 1976. But he again stressed the importance of not generalizing about the effects of coyotes on deer. Analysis of stomachs of coyotes in the Missouri Breaks and Bozeman areas revealed a high level of deer remains; in samples from Musselshell, Lake and Sanders counties, deer remains were low.

According to Freeman, ". . . in spite of relatively high losses to coyote predation, we really don't know what the effects are on year-to-year population trends." —*Steve Bayless*

COURT DECISION BETTER THAN EXPECTED

Montanans' constitutional guarantee to a clean and healthful environment and the right to fight for it in the courts has been upheld by the Montana Supreme Court.

On July 22, 1976, the Supreme Court upheld a lower court decision by District Judge Gordon R. Bennett in which he ruled the Dept. of Health and Environmental Sciences had inadequately assessed the impact of the proposed Beaver Creek South subdivision in its environmental impact statement (EIS). (Beaver Creek South is a proposed 95-acre development 50 miles south of Bozeman, near Big Sky.) The development site lies adjacent to the Gallatin Game Range, a big game winter range and public hunting area purchased by Montana sportsmen.

The Montana Wilderness Assn. and the Gallatin Sportsmen's Assn., Inc. filed the original successful suit against the State Board of Health and the Montana health dept. which then appealed it to the Supreme Court. The decision by the higher court not only upheld the original decision requiring the health dept. to prepare a more thorough EIS, but also strengthened the lower court decision.

The Supreme Court upheld three main issues: (1) the right of sportsmen's associations to sue, (2) the right of sportsmen's associations to seek an injunction to halt degradation of the area and (3) the responsibility of the health dept. to study and consider all environmental impacts of a development, not just water sanitation and sewage and solid waste disposal.

The health dept. argued that the associations had no right to sue because their members would suffer no real injury from development of Beaver Creek South. However, the court noted that Article II of the 1972 Montana Constitution recognizes an "inalienable . . . right to a clean and healthful environment." The court also noted Article IX of the constitution says the legislature shall "maintain and improve a clean and healthful environment in Montana." Assoc. Justice Frank I. Haswell, writing for the majority, said the citizens must have the right to sue state agencies to force them to do their duties, otherwise the "constitutional provisions and the Montana Environmental Policy Act (MEPA) would be rendered useless verbiage, stating rights without remedies."

The court said because the association members use the land adjacent to Beaver Creek South, they indeed would suffer from degradation of the area and had a right to sue. The sportsmen were particularly concerned about the harm to the local elk herds from the subdivision.

In its decision, the court gave strength to MEPA. Enacted in 1971, the act requires state agencies filing EISes to include "a detailed statement on the environmental impact of the proposed action" and "alternatives to the proposed action." The health dept. maintained it only needed to examine the environmental effects related to water supply and sewage and solid waste disposal. The court concluded that the health dept. must follow MEPA guidelines and had not done so. The court stated, "The revised EIS is procedurally inadequate in its analysis of economic costs and benefits, aesthetic considerations and wildlife factors."

"Maybe the most important part of the decision," said Steve Perlmutter, attorney for the Environmental Quality Council, is the "mandate of every state agency" to follow MEPA requirements. He said, "EISes have been pieces of paper to crank out to satisfy somebody." Now EISes should give more attention to the effects of developments on wildlife and other often ignored factors. If the EISes do not improve, the court has given citizens the right to sue the responsible agency to do a better job.

But one major question remains. If an adequate EIS is filed and the development is still allowed, do citizens have the right to sue on the grounds that the decision permitting development is wrong?

("One for Wildlife," Jan./Feb. 1976 Catchall)

MONTANANS GET CHANCE TO APPROVE BOTTLE BILL

Another round of the bottlers vs. the consumers will begin in January when State Sen. Chet Blaylock (D-Laurel) introduces a "bottle bill" into the Montana Legislature—for the second time.

The bill, patterned after Oregon legislation, would ban use of non-returnable cans and bottles for beer and pop, ban pull-tabs on cans, impose a basic deposit of five cents per container and require distributors to refund deposits to anyone presenting empty containers. A two-cent deposit would be allowed on bottles conforming to a standard size and shape. These could be collected and reused by several companies, simplifying storage and handling.

Blaylock said the only difference from the Oregon bill was absence of a provision for redemption centers to collect returned bottles. He said they have proved unnecessary in Oregon where stores receive most of the returnables.

Passage of the bill would cut litter, help keep private land open to outdoor recreationists, conserve non-renewable resources and energy, protect wildlife habitat, save consumers and the industry money and

recycled paper

create jobs. Nevertheless, a no-holds-barred fight is expected from the beverage industry. The same bill introduced by Blaylock last year was defeated and he believes the same people who fought it then will be back again in force.

Although the beverage industry got along for decades selling its drinks in returnable containers, the industry now claims a bottle bill would destroy it. Blaylock said most opposition to the legislation comes from bottlers, aluminum workers at Columbia Falls and recycling businesses. Last year when the bill was introduced, he said, "The young recyclers cried tears the size of marbles—very effective." Recyclers are afraid of losing the aluminum can portion of their businesses. But, Blaylock pointed out there will still be plenty of paper, steel, iron and other materials to recycle.

He also noted many cans and bottles never make it to the recycling centers. "People are packing cans by the tons into the mountains," he said, "and don't bother to take them out." People rarely throw away bottles with a deposit though, he added. And if they do, kids usually come along and pick them up to redeem the deposit.

He predicted cans would go by the wayside in Montana because they must be melted down before refilling. On the other hand, bottles can be refilled about 15 times.

Far from causing unemployment, the bill would create additional jobs. A study by Oregon State University researchers reported a net gain (counting jobs lost) of 365 full-time jobs and an increased payroll of $1.6 million as a direct result of that state's bottle bill.

Blaylock thinks the bill could bring back Montana's breweries. "We used to have about 15 breweries in Montana," he said. "We don't have one now, primarily because of the pressure of the throwaway industry." With the advent of the throwaway, no need existed for breweries to ship their empties back. Large breweries overwhelmed the markets of smaller, local competitors. But with passage of the bottle bill, it would probably be cheaper to brew, or at least bottle, the beverages in Montana. Cost of shipping returnables back to the West Coast or Colorado would likely be prohibitive.

Because Montana is a relatively small market, Blaylock said large beverage industries may threaten to end sales in Montana. Blaylock said that would be just fine and emphasized, "We can make beer in Montana, good beer!"

Unfortunately, he said, many persons who would benefit from the bill are not as well organized as the far fewer persons who would be hurt by it. That is why Blaylock is trying to drum up "more grass-roots support." He said people should call or write their representatives to counter lobbying efforts of the bottlers. He mentioned the Northern Plains Resource Council, the Environmental Information Center and the American Farm Bureau as particularly vocal supporters of the bill. But he emphasized calls and letters are needed—"not form letters, letters from people they know. If I can get that, we can get the bill passed," he predicted.

But it's likely to be a tough fight. The throwaway industry has seen Oregon go to a bottle bill. So has Vermont. South Dakota passed a similar, but weaker, bill. This November the "bottle bill" will appear on the ballot in four states—Colorado, Maine, Michigan and Massachusetts. It will also be considered by several state legislatures besides Montana's. And national legislation is pending.

"I think they're scared to death it will get a trend going," Blaylock said. But common sense alone should tell us it's time to throw away the throwaway system.

("The Great Container Controversy," July/August 1976)

John Poston, left, Helena sportsman, and Lee Masters, from the Skyline Sportsmen's Assn., Butte, listen as Gini Rude from the Dept. of Fish and Game license section explains details about the annual drawing for moose, sheep and goat permits. Poston and Masters, along with other sportsmen from around the state, attended a day-long session in Helena July 23 during which department representatives and the state's Data Processing Division explained the drawing. F&G photo: Steve Bayless

WHO COULD ARGUE WITH THIS GROWTH?

In 1975, the solar power industry experienced unprecedented growth, according to the Federal Energy Administration. The number of companies rose from 39 in 1974 to 118 in 1975. The number of solar collectors manufactured increased 400% during the same time span. —*High Country News*

recycled paper

YELLOWTAIL DAM ELIMINATES HABITAT

In this era of energy development, we hear much discussion in Montana about on-stream water storage to facilitate both development and expansion of industrial and agricultural enterprises.

But when a dam is built, wildlife habitat is also lost. The most obvious loss occurs in the upstream flood pool area. The land covered with water is immediately and permanently lost as terrestrial wildlife habitat. Downstream losses are more subtle and take longer to show, but they can be very substantial.

Comparing two sets of aerial photographs of the Bighorn River, one taken in 1939 and the other in 1974, reveals some interesting changes in the river below Yellowtail Dam. In 1939, 414 vegetated islands existed in the river from the dam site to its mouth at the Yellowstone River, a distance of 85 river miles. These islands averaged a little over 15 acres each, with a total area of approximately 6,360 acres. Since the photos were taken in 1939, the number of islands has decreased to 287. The average island now occupies 17 acres and total vegétated island area is reduced to 4,890 acres. In addition, the river itself lengthened to 86 miles. Because of construction of Yellow tail Dam, 127 islands (31%) totaling nearly 1,470 acres—or 23% of the island habitat—have disappeared in a decade.

However, Buffalo Bill Dam on the Shoshone River and Boysen Dam on the Wind River (both Wyoming tributaries to the Bighorn) also may have influenced habitat destruction. Loss of this wildlife habitat has eliminated or displaced many game and nongame animals such as white-tailed deer, beaver, raccoons, pheasants, ducks and geese.

Another measure of loss centers around elimination of gravel bars. There were 741 gravel bars totaling approximately 2,200 acres in 1939. By 1974, the number had decreased to 412 and the total area was reduced by 69% to 677 acres. Gravel bars of this type offer resting and escape areas for ducks and geese.

The two photographs show a portion of the Bighorn River near the community of Saint Xavier. Figure 1, taken in 1939, shows a braided stream with many gravel bars. In Figure 2, taken in 1974, the river is confined primarily to one channel and only a few gravel bars are visible.

How did this change occur? Briefly, the dam acts like a big settling pond. As water velocity is reduced, sediments from upstream are deposited in the reservoir. This results in a discharge of water with a reduced sediment load flowing out below the dam. This sediment-free water picks up sand and gravel, moving it downstream. Since no sediment is carried into the section of the river below the reservoir, erosion of the bed results and the river cuts below the level of side channels, confining itself to only one channel. Thus, islands are consolidated or eliminated entirely. Examination of the two photos dramatically points this out.

The controlled flow also eliminates peak run-off in the spring which (1) eliminates the elements which create new islands and (2) allows vegetation to grow down to the water edge—a situation not conducive to nesting geese.

Now a situation exists where (1) no new islands are formed, (2) old islands are consolidated and some are eliminated (i.e., become part of the mainland), (3) gravel bars are eliminated, either by washing downstream or growing over with dense vegetation and (4) the river itself is becoming more and more confined to one channel. This channelization increases the river's velocity and causes erosion of once stable banks as the river attempts to establish a dynamic state of equilibrium—it erodes the outside of bends and deposits sediment on the inside. (See "A Bad Spring on Spring Creek" in the July/August 1971 *Montana Outdoors* and "Was Your Stream Gone When You Got There?" and "We're Losing Our Streams!" in the Jan./Feb. 1974 issue.)

These factors work together to eliminate much wildlife habitat. They should be weighed very carefully before deciding to construct a large mainstream dam. — *Pete Martin*

Figure 1

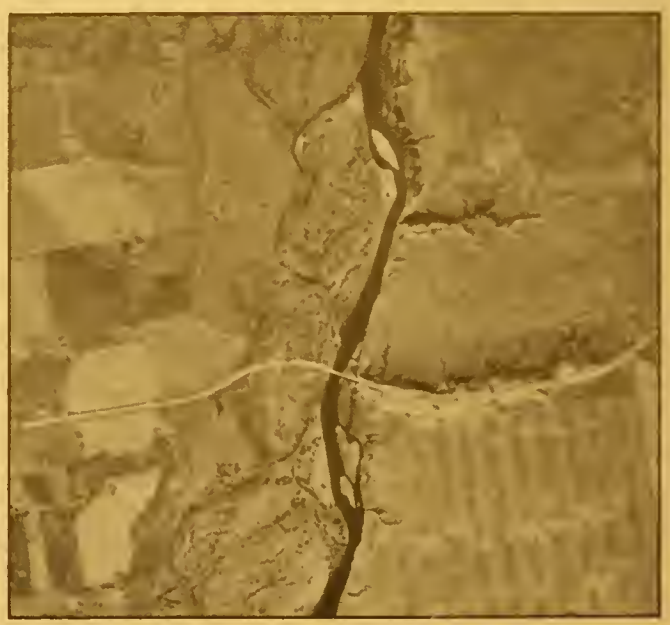


Figure 2

recycled paper

lobes in the stomach of ruminant animals, those that regurgitate and chew cud, such as cattle, sheep, goats and deer.) Examination of an animal's feeding area also provides reliable information. Biologists can determine seasonal forage preferences by comparing the relative abundance of forage species in the diet with the relative abundance of the plants on the range where the deer were taken.

Seasonal use of various forage classes by both species of deer is similiar, although each species may use different individual plants. This difference relates to patterns of range use more than anything else. Let's now examine what mule and white-tailed deer eat in specific parts of Montana.

MULE DEER

With regard to vegetational and topographical characteristics, mule deer are found just about everywhere in Montana. But many of the plant species that occur in their diet do not exhibit this widespread distribution. So, mule deer in western Montana have a slightly different diet than those in central or eastern Montana. But the *relative* amounts of each forage class in the mule deer's diet are approximately the same year-round in all regions.

Based on food habits of mule deer, Montana can be separated into three general regions: (1) eastern prairies and timbered foothills, (2) central mountains and (3) western mountains. Although this division is arbitrary, each area has its differences and similarities when compared with the others. Also, deer food habit studies have not been intensive enough to define more detailed regional differences.

• *Eastern prairies and timbered foothills*—The eastern region includes gently rolling grass lands and sagebrush-grass lands as well as rugged timbered and nontimbered breaks. The area also comprises foothills covered with scattered stands of ponderosa pine, primarily in south central and southeastern Montana.

Forbs used most frequently during summer in eastern Montana include common salsify, yellow sweetclover and wild lettuce. Deer also eat a wide variety of deciduous browse species, including wild rose, skunkbush sumac, chokecherry and buffaloberry.

Together, common and western snowberry are the most widely used browse in the mule deer's diet during fall. Mule deer begin consuming less summer browse and depend more on winter browse. In many localities, aster—a forb—receives use. When available, deer sometimes use agricultural crops, especially alfalfa, another forb.

Major browse species used during winter throughout eastern Montana include rubber rabbitbrush, big sagebrush and silver sagebrush. In some cases, deer eat substantial amounts of skunkbush sumac during winter in the timbered foothills of south central and southeastern Montana. Where available, deer also consume green rabbitbrush in the late fall and winter. In the Missouri and Milk River breaks, deer usually exhaust the supply of rabbitbrush by early or midwinter, suggesting they prefer it over other browse. Rabbitbrush also occurs in mountainous areas on both sides of the Continental Divide, but here it has little regional importance. When the rabbitbrush is gone, the animals turn to Rocky Mountain and horizontal juniper. Biologists consider Rocky Mountain juniper marginal or "starvation" food for deer.

Throughout eastern Montana, mule deer use yucca, a forb, in their winter diets, perhaps because it remains green throughout the year.

During spring, mule deer eat a wide variety of vegetation, including grasses, summer and winter browse and forbs.

• *Central mountains*—This region includes isolated mountain ranges in central Montana as well as the eastern slopes of the Rockies. Distribution and availability of browse varies throughout the region during winter.

Forbs used during summer include geranium and common salsify. Wild rose is an important summer browse species, while chokecherry and huckleberry are used extensively in some localities. Where available, chokecherry receives year-round use throughout Montana. Heavy, sustained use has seriously reduced or eliminated it in some areas. This may be why chokecherry doesn't account for a larger portion of the mule deer's diet in many areas.

Fall browse species include snowberry, Oregon grape and wild rose. Oregon grape in Montana is almost exclusively limited to the timbered mountainous areas of the western and central parts of the state. Forbs used during fall include alfalfa, balsamroot and aster. Balsamroot occurs primarily in western and south central Montana.

During winter, browse species used by mule deer vary considerably throughout the central mountainous region. In the Big Snowy and Little Belt mountains, mule deer use both common and horizontal juniper. Results from a study conducted on the south side of the Little Belt Mountains showed the two juniper species constituted prime winter forage capable of bringing deer through harsh winters in good shape. In one area nearly depleted of common juniper, deer were forced to feed on marginal browse such as ponderosa pine and Rocky Mountain juniper. Of the wintering fawns, 50% died. On the other hand, with abundant common and horizontal juniper, winter fawn mortality was negligible.

In southwestern Montana, east of the Continental Divide, big sagebrush, bitterbrush and curl-leaf mountain mahogany are important winter browse species. In the Bear Paw Moun-

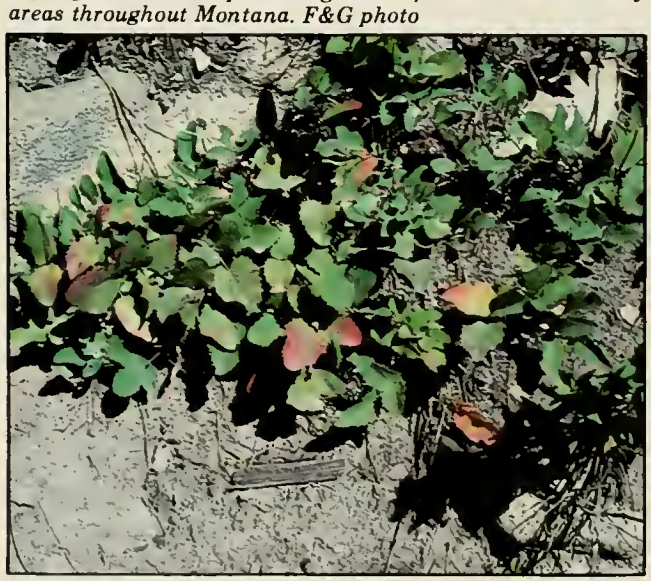
continued

Rocky Mountain maple—important winter browse for mule deer in the Sun River area on the east slope of the Rockies. F&G photo: Vince Yannone

skunkbush sumac—a deciduous shrub used by mule deer in summer, fall or winter in eastern Montana. F&G photo: Gary Dusek

big sagebrush—a staple during winter for mule deer in many areas throughout Montana. F&G photo

wild rose—widely used shrub in the summer diet of mule deer in eastern and central Montana. F&G photo: Mike Aderhold



Oregon grape—browse for both deer species during fall or winter. F&G photo: Vince Yannone

silver sagebrush—important winter browse for mule deer in eastern Montana. F&G photo: Mike Aderhold

western serviceberry—used by both deer species during fall and winter in central and western Montana. F&G photo: Vince Yannone

bitterbrush—important to mule deer during winter in southwestern Montana, especially in the Bridger Mountains. F&G photo: Vince Yannone

horizontal juniper—good "back-up" browse for mule deer in parts of eastern and central Montana. F&G photo: Gary Dusek

chokecherry—where available, used by both deer species year-round. F&G photo: Bill Schneider

Douglas-fir—important to deer west of the Continental Divide. F&G photo: Mike Aderhold

rubber rabbitbrush—mule deer in eastern Montana prefer it during late fall and winter. F&G photo: Vince Yannone

tains of north central Montana, deer extensively use western serviceberry, horizontal juniper and quaking aspen, with chokecherry receiving some use. Rocky Mountain maple is the most abundant item in the winter diet of mule deer in the Sun River area on the east slopes of the Rockies. Other browse used includes ceanothus, quaking aspen and western serviceberry. Like chokecherry, biologists consider serviceberry an "ice cream" plant because deer like it so well. Serviceberry also can't tolerate heavy, continuous browsing without damaging the plant. Many experts feel that 60% utilization of annual growth is maximum. Western serviceberry occurs primarily in the western two-thirds of Montana.

• *Western mountains*—This region includes that part of Montana west of the Continental Divide. Much of this region is covered by a dense canopy of timber. Studies here on mule deer food habits aren't as numerous as they are for the eastern part of the state.

Browse used during summer and fall in western Montana includes chokecherry, huckleberry and snowberry. Deer also utilize balsamroot, a forb, during this period.

During winter, deer use conifers—including Douglas-fir, ponderosa pine and occasionally Rocky Mountain juniper—for browse more than they do east of the divide. Other browse used during this season in the western region includes big sagebrush, western serviceberry, Oregon grape and ceanothus.

WHITE-TAILED DEER

Food habit work on white-tailed deer has not been as extensive east of the Continental Divide as it has been on the west side. Whitetails make up a larger proportion of the annual deer harvest on the west side, particularly in the northwestern corner of the state. For this reason, food habit information collection on whitetails perhaps has received a higher priority on the west side.

• *East of the Continental Divide*—White-tailed deer usually inhabit bottom lands and drainages with an abundance of deciduous tree-shrub vegetation. Agriculture usually goes hand in hand with such areas and crops such as alfalfa and wheat occur in the whitetail's diet nearly year-round. Depending on the season, deer eat mature seed heads or green leaves and stems of wheat.

Unlike mule deer in eastern Montana, many summer browse species used by whitetails also are used during fall, winter or spring. Relative abundance and the specific part of the plant used (twigs, stems, leaves, buds, etc.) probably change seasonally. Browse species used in eastern Montana by whitetails include snowberry, chokecherry, quaking aspen, cottonwood, western serviceberry, hawthorn and dogwood. Ponderosa pine received heavy use during winter in the Big Snowy Mountains when deep snow precluded use of other, perhaps more preferred, forage species.

During spring, grasses, browse and forbs are well represented in the whitetail's diet.

• *West of the Continental Divide*—White-tailed deer habitat usually includes a closed canopy forest of Douglas-fir and ponderosa pine. Here, unlike the eastern part of the state, deer depend on open areas in the forest canopy for much of their food. Since mature forests in western Montana have little understory vegetation (forbs, shrubs, etc.) suitable as winter food for deer, abundance and distribution of openings in the forest canopy may limit deer numbers.

Important fall browse species include Oregon grape, western serviceberry, kinikinnick and alder.

During winter, conifers make up a large part of the diet, especially Douglas-fir and ponderosa pine. Fall browse also receives use during winter.

CONCLUSION

After eons of nature's experimenting, deer have become remarkably adapted organisms, finely adjusted to their environment. Those members of the deer family which lacked the ability to cope with and adapt to drastic climatic and vegetational changes disappeared long ago. But white-tailed and mule deer persevered in North America. The two species of deer as we know them have perhaps undergone tremendous population fluctuations because of periodic environmental changes throughout the past million years.

Many sound reasons exist for understanding the relationship between deer and their foods, other than satisfying a passing curiosity. Such information is fundamental to important decisions concerning deer management. We must first assume that deer know what foods are best for them. If such foods are palatable and available on deer range, they will be utilized. Not only is it important to understand what plant species deer use, but also which of the following categories they fall under: (1) preferred, which includes the "ice cream" plants, (2) good or "back-up" foods or (3) marginal or "starvation" foods. Deer that succumb to malnutrition often die with a full stomach—full of non-nutritious forage.

Fawn production and winter survival of all age classes of deer are directly related to quality and quantity of deer forage. The following statement by Aldo Leopold from "A Sand County Almanac" exemplifies this relationship: "I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer. And perhaps with better cause, for while a buck pulled down by wolves can be replaced in two or three years, a range pulled down by too many deer may fail of replacement in as many decades."

editorial

grizzly bear critical habitat

Under Sec. 7 of the U.S. Endangered Species Act of 1973 (ESA), the federal government is required to publish a definition and description of the "critical habitat" of all animal species listed as either threatened or endangered under the act. The grizzly bear was listed in the Federal Register under that act as a threatened species, south of Canada, Sept. 1, 1975.

The ESA generally provides broad areas of protection and improved management for many animal and plant species. It has been hailed as the "Magna Charta" for wildlife. Sec. 7, however, is the crucial part of the act for state and federal land managers, large private land companies and any landholder in grizzly habitat who requests federal funds or aid. Proved noncompliance with the ESA could result in federal disciplinary action or the withholding of federal guarantees and funds.

More specifically, Federal Rules (published April 22, 1975 in the Federal Register) which now apply to the grizzly, define "critical habitat" as "... the entire habitat or any portion thereof, if, and only if, any constituent element is necessary to the normal needs or survival of that species." These include: "(1) space for normal growth, movements or territorial behavior; (2) nutritional requirements, such as food, water, minerals; (3) sites for breeding, reproduction or rearing of offspring; (4) cover or shelter, or (5) other biological, physical or behavioral requirements."

In a nutshell, safeguarding of the above elements for the grizzly bear in Montana by the federal government is now intended under the ESA. This protection forbids the modification or destruction of habitat "of sufficient magnitude to place the species in further jeopardy." Although these rules give very strong powers whenever necessary, they *do not* forbid many activities by local residents (e.g., logging, hunting, tourism, fishing, etc.) which may cause low-level modification or destruction of habitat and thus are not significantly harmful to the species.

But therein lies the crux of a continuing dilemma for the responsible agencies. No one knows for certain what constitutes grizzly bear "critical habitat," where it is found or what levels of modification and destruction are significantly harmful and which are not. State and federal land and game management agencies hope for a slow and careful evaluation so existing programs and economies are not unnecessarily unbalanced, whereas other federal agencies and many private groups desire immediate "broad brush" application of the rules "to play it safe." The existing research indicates the status of the grizzly is reasonably safe and that overreaction is not warranted. But this information is preliminary and considered inconclusive by many persons.

In an attempt to further define "critical habitat," the federal government will soon publish the Proposed Rules describing in detail grizzly bear critical habitat.
This will be, in fact, a broad description of critical habitat for the species. It may cause alarm among many agencies and individuals who fear widespread misapplication of the

continued

ESA—plus eventual court cases and perhaps loss of the act through a Supreme Court declaration of unconstitutionality. Because of a peculiarity of publishing in the Federal Register (one can withdraw portions of the rules, but cannot add to the rules), the Dept. of the Interior felt that it had no choice but to use this broad approach, hoping that during the review period the description of "critical habitat" would be cut back in size to form an adequate set of rules. Under federal procedures, three months is allowed for this review (two months from the publication of the Proposed Rules and one month after publication of the Final Rules). Comments should be sent to the Director, U.S. Fish and Wildlife Service, Dept. of the Interior, 18th and E Street; Washington, D.C. 20240.

The three months probably provides an adequate review period. But unfortunately, the entire action of describing "critical habitat" for the grizzly may be premature. Several research efforts are under way on the grizzly bear south of Canada, including two funded partially by Montana—one in the Yellowstone area (the Interagency Grizzly Bear Study Team) and one in northwestern Montana and adjacent jurisdictions (Border Grizzly Project). All of the grizzly bear research projects are only in the initial stages of data collection, compilation and evaluation and precise data on critical habitat simply are not yet available.

Presently, the occupied, intermittently occupied and potential ranges are roughly known, but "critical habitat" *within* those ranges is known only for certain areas. Typical critical areas include early spring ranges (when most of the bear range is still deep in snow), denning areas, major feeding areas and areas of sanctuary from the activities of man. Bruce Meadows in the South Fork of the Flathead, the North Fork of the Flathead flood plains, the Mission Valley foothills and the east slope foothills, stream and river bottoms are examples. Additional considerations for each site include a concern for areas having critically low grizzly numbers, areas where major development is pending (e.g., oil and gas development, Ski Yellowstone and other winter recreation areas, water impoundments, power corridors, etc.) and areas which already have critical or cumulative impacts (e.g., livestock allotments or excessive road building, together with increased tourism or logging).

These concerns and problems are all valid considerations and all could be crucial to grizzly bear survival south of Canada. In fact, acquisition of lands where there are recurrent problems, similar to game bird and big game range acquisition programs, is long overdue. Livestock operations in the North Fork and subdivisions in grizzly habitat are possible examples of areas which should be purchased. However, in my view, blanket restrictions or controls over all suspected activities to "play it safe" would have unnecessary and disastrous effects on local economies and persons throughout the Yellowstone and Border grizzly areas. The ultimate result would certainly be a backlash, with local resentments and extermination of many grizzlies, strong opposition by the timber and ranching industries and perhaps a loss of the Endangered Species Act through court action.

With grizzlies already a controversial species, one can only hope that concerned persons and agencies will use discretion in their responses and pressures during the final definition of the rules. At this point, flexibility in the rules to allow for the use of new data and management approaches is essential. —*Dr. Charles Jonkel, Border Grizzly Project, University of Montana, Missoula*

graphics: Linda R. Stroh

MONTANA OUTDOORS
INDEX

The following is a list of articles published in *Montana Outdoors* during 1975 and 1976. Extra copies of most issues are available from *Montana Outdoors,* Dept. of Fish and Game; Helena, MT 59601. Price per copy is 60 cents.

CONTROVERSIAL

the end of living and beginning of survival?—what will project independence mean to montana? Jan./Feb. 1975

where is montana growing?—a special section with features and short pieces on several aspects of growth and land development including: a look back—the history of land use, growth—is it benign or malignant?, the gallatin and a land use study. Jan./Feb. 1975

burlington northern runs more than a railroad—the circle west project. (catchall) March/April 1975

the energy crisis as a coal miner sees it—an opinion on the present energy situation. March/April 1975

the steel shot gamble—federal regulations may force shotgunners to use steel shot for waterfowl hunting. May/June 1975

lake mary ronan—a place where county officials tried to put the public interest first. July/August 1975

the gas company's pipe dream—some basic facts on the canadian pipeline and its impact. July/August 1975

yellowstone elk: curse or blessing?—the controversy about elk in and around yellowstone national park flared again this year. Sept./Oct. 1975

the mitigation myth—the real impact of libby dam on fisheries has finally surfaced. Nov./Dec. 1975

melita island—headed for its last camp—this island, formerly used for boy scout camps, has been sold to a land developer. Nov./Dec. 1975

slippery bill and the big bear—another subdivision encroaches on grizzly habitat. (catchall) Nov./Dec. 1975

good-bye north fork?—will destructive development spell ruin for this beautiful river system? Jan./Feb. 1976

trapping: humane alternatives—recent criticism has prompted interest in humane alternatives. Jan./Feb. 1976

the stillwater complex—booming again—how will this "boom" affect wildlife? Jan./Feb. 1976

the guns of autumn—our comments on cbs' "unorthodox approach" to news documentaries. Jan./Feb. 1976

the subdivision nobody knew—at wolf creek, developers are ruining wildlife habitat and changing life styles. March/April 1976

private forestry—trees are like any other crop. March/April 1976

centennial primitive area—primitive designation would benefit wildlife as well as other values. (editorial) March/April 1976

the elkhorns—a controversy over one logging road has evolved into a public debate over planning in the national forests. Nov./Dec. 1976

ENVIRONMENT

the long pines—a scenic and resource-rich region with potential environmental disaster looming on its horizon. March/April 1975

what's going on out there?—a brief summary of the most important energy developments in eastern montana. March/April 1975

is strip mining inevitable?—the answer depends on us. (editorial) March/April 1975

studying energy development—a roundup of the department's various energy and coal related research projects. May/June 1975

on the care and feeding of lakes—a detailed explanation of eutrophication. July/August 1975

an alternative to development—conservation easements. (catchall) Sept./Oct. 1975

impact of canadian project spills over into montana—a 21,000-acre coal reserve straddles the poplar river, which originates in canada but flows into montana. Nov./Dec. 1975

mining laws and the public—how do man's economic demands balance against the needs of wildlife? (editorial) Jan./Feb. 1976

the rape of montana—a guest editorial. May/June 1976

the great container controversy—a small deposit brings a large return—in terms of wildlife habitat and saved energy. July/August 1976

update—some new developments on wolf creek, poplar river, circle west, alaska pipeline and the north fork. (catchall) July/August 1976

a day at decker—a report on what's happening at the decker coal mine. Sept./Oct. 1976

the rock creek mine—a proposed cyanide leaching plant and mine have gone unnoticed—until now. Nov./Dec. 1976

update—some new developments on container legislation and beaver creek south court decision. Nov./Dec. 1976

FISH

how many miles of "unbeatable trout streams" left?—one man's opinion of montana's promotion policies. (editorial) Jan./Feb. 1975

the tongue river—this prairie stream is often ignored. March/April 1975

the flathead lake study—this project's "skipper" explains the study, its goals, methods and findings. March/April 1975

meet mr. whiskers: the catfish—be careful what you say about the edibility and general allure of this fish. Sept./Oct. 1975

shovelnose sturgeon—you could find a primitive prize at the other end of your fishing rig. Nov./Dec. 1975

sauger—sometimes anglers pass up this tasty, hard-fighting game fish. Jan./Feb. 1976

the lower madison—will we lose this fabulous trout fishery? May/June 1976

fishing access—a vital department program. May/June 1976

GAME

coyotes and game—new facts and research into this continuing debate. March/April 1975

the grizzly—what can citizens really do to help the grizzly? July/August 1975

elk and logging—an update—more on the cooperative elk/logging research project. July/August 1975

can we afford natural regulation?—the department's views on the heavy spring die-off of elk around Yellowstone National Park. (editorial) July/August 1975

managing the grizzly: department position statement—the real issues of habitat destruction and encroachment often take a back seat to discussions about hunting. Sept./Oct. 1975

montana deer: a history of change—the key factor is habitat. Sept./Oct. 1975

elk in the missouri river breaks: department projects—this area is once again supporting a huntable elk population. Sept./Oct. 1975

what good is a grizzly?—the writer presents a thought-provoking answer. (editorial) July/August 1976

hunting a place to hunt antelope—a detailed explanation of recent problems with access by hunters in eastern montana. Sept./Oct. 1976

"grizzly"—don't waste your money—a movie review. (editorial) Sept./Oct. 1976

it's an elk's life—and every season brings changes and challenges. Nov./Dec. 1976

what deer eat—valuable information for hunters. Nov./Dec. 1976

grizzly bear critical habitat—a discussion of the definition and description. (editorial) Nov./Dec. 1976

where have all the deer gone?—the answer is one involving many complex, diverse factors. Nov./Dec. 1976

continued

recycled paper

coyotes and deer—department studies from several areas are adding to knowledge about coyote predation on deer. (catchall) Nov./Dec. 1976

GENERAL INTEREST

eastern montana—a nine-page color tribute to this often forgotten part of montana. March/April 1975

mushroom fascination—a guide to finding, preserving and eating the wild mushroom. May/June 1975

montana state fishing records—competition is stiffening, but still, many records remain pitifully low. May/June 1975

new handle on subdivisions—the story behind H.B. 666. (catchall) July/August 1975

you can't keep a good idea down—a special day for sportsmen, national hunting and fishing day. July/August 1975

legislative roundup—a brief recap of legislation affecting fish and wildlife. July/August 1975

the truth about snakebite—some misconceptions about snakebite and its treatment. July/August 1975

cooking the wild berry—some tantalizing tips on preparing and preserving wild berries. July/August 1975

game bird scenes for framing—some of the finest photos of montana's game birds. Sept./Oct. 1975

sunlight, silhouettes and solitude—a pictorial of the shadows, light and subtle color known to every hunter. Nov./Dec. 1975

historic preservation—what the department is doing to preserve montana's historic past. Nov./Dec. 1975

toward a common goal—the social and ethical considerations of hunting. Nov./Dec. 1975

why we hunt—results of MO survey. Nov./Dec. 1975

red rocks refuge—a conservation success story with problems. Jan./Feb. 1976

the audio-visual center—the department's efforts in film, radio, tv and photography. Jan./Feb. 1976

remember earth day?—although earth day has lost some of its luster, this project has endured. March/April 1976

chief seattle's challenge—can we buy the sky? March/April 1976

baucus introduces flathead river bill—portions of the river to be included in the national wild and scenic rivers system. (catchall) March/April 1976

montana state fishing records—six state records are broken. (catchall) May/June 1976

the art of social conservation—the growing complexities of resource management. May/June 1976

hunting licenses for 1976—answers to some of your questions. May/June 1976

gardening without pesticides—natural ways to control pesky garden critters. July/August 1976

sportsmen and the meter—like it or not, the metric system will be in use sooner than you think. (catchall) July/August 1976

try a "wild" alternative—if you think pork chops and steak are the last word in good nutrition. Sept./Oct. 1976

OUTDOOR RECREATION

license fee increase—is it necessary to maintain quality and quantity hunting and fishing? (editorial) March/April 1975

hypothermia—how to avoid becoming part of nature's "recipe for death." May/June 1975

fly fishing—another outdoor recreation guide with articles on various aspects of this sport. July/August 1975

license fee increase—a roundup of the new fees. (catchall) July/August 1975

what about this anti-hunting thing?—stock defenses of hunting no longer satisfy a growing nonhunting public. Sept./Oct. 1975

farm pond fishing—a high quality and underused fishing opportunity. May/June 1976

recreational access on the yellowstone river—public access sites. (catchall) July/August 1976

an investment for the future—the mount haggin purchase will benefit wildlife and recreationists. Sept./Oct. 1976

good landowner/sportsman relations—are they possible? Sept./Oct. 1976

WILDLIFE

we've never met an animal we didn't like—the department's new nongame species program explained. Jan./Feb. 1975

the federal take-over—are montanans unknowingly encouraging federal control of wildlife management? Jan./Feb. 1975

happiness is a haystack—a few facts about the pika. Jan./Feb. 1975

the sandhill crane—gangly and awkward, but it's still a great game bird. May/June 1975

from dust to ducks—here is a place where a federal construction project benefits wildlife. May/June 1975

if you really care, leave them alone—avoid kidnapping or even touching young wildlife. (editorial) May/June 1975

the wolf—one of montana's rarest mammals. Sept./Oct. 1975

the whooping crane—one of north america's grandest birds. Nov./Dec. 1975

the black-footed ferret—part of montana's endangered wildlife. Jan./Feb. 1976

one for wildlife—beaver creek south subdivision. (catchall) Jan./Feb. 1976

the american emblem that almost was—the story of merriam's turkey. March/April 1976

the peregrine falcon—the fastest bird in the world. March/April 1976

the nongame funding dilemma—nonsportsmen must share the expense of wildlife management. May/June 1976

montana wildlife—170 years ago—as the expedition of meriwether lewis and william clark saw it. July/August 1976

sage grouse—is this once plentiful game bird on its way to extinction? Sept./Oct. 1976

of sage grouse and overburden—this strand in the woven web of wildlife is under a severe test. (editorial) Sept./Oct. 1976

lewis and clark meet the awesome white bear—the grizzly provides some hair-raising adventures. Sept./Oct. 1976

land use practices mean fewer pheasants—a five-year study in the yellowstone valley. Nov./Dec. 1976

MOVING?

If you're planning to move in the near future, please attach the label from your last issue and send it and your new address to *Montana Outdoors*, Department of Fish and Game; Helena, MT 59601.

NEW ADDRESS:

Name _____

Address _____

City _____ State _____ Zip _____

recycled paper

Wilderness Classification—Alternative to Development

The letter from H. A. Buzz Chevara of the Washington State Big Game Council (Sept./Oct. 1976) referring to supposed Dept. of Fish and Game advocacy of wilderness designation was thought provoking and deserves some study. Mr. Chevara stated in his letter that the Washington State Horsemen Assn., the King County Outdoor Sports Council and the Washington State Big Game Council all actively campaign against additional wilderness because they "understand the long-range implication of wilderness classification on their activities." Mr. Chevara also goes on to say: "They know the strategy and long-range intentions of wilderness preservation groups are to preclude their activities."

I've been aware for some time that the Washington State Horsemen Assn. has, through its "Trails and Pleasure Division," been actively campaigning in opposition to proposed wilderness and has instead been advocating "multiple use" classification for those areas. Their position is difficult for me to understand and a position I feel will ultimately doom most Washington horse users to riding their horses on logging roads or ferrying them to Montana. Aldo Leopold may have said it best back in 1925 when he said: "The day is almost upon us when a pack train must wind its way up a graveled highway and turn out its bell mare in the pasture of a summer hotel. When that day comes the pack train will be dead, the diamond hitch will be merely a rope and Kit Carson and Jim Bridger will be names in a history lesson."

The truth, as I see it, is wilderness classification has offered the only sure alternative to development in the past, for "multiple use" has always evolved into logging roads, reservoirs or recreational developments with summer homes, ski slopes, etc. Wilderness classification has been the only assurance that backcountry would be provided for future Americans in the "multiple use" scheme of things—that we'd always be able to find a place where we could re-create a past heritage and let nature create in her own way.

To be sure, wilderness classification has had its negative overtones while a few well-meaning, but shallow-thinking, individuals tried to re-create wilderness into their own preconceived ideas. And there are still problems. Any wildlife management is still difficult in wilderness as the managing agency adheres to in-service regulations rather than congressional law. No action can yet be taken in wilderness to negate the wildlife disaster that has befallen our forest lands in the wake of 30 years of effective (and detrimental) fire suppression. But that's a problem of wilderness management, not of wilderness classification.

I, too, am a horse user, a member of Montana's fastest growing conservation organization—Back Country Horsemen. Our group originally organized because of a concern for the future of horse use in our backcountry areas, no matter whether they were in park, wilderness or undesignated lands. We recognized that the problems were not in designation, but in agency interpretation of the law—management!

We've certainly tried to work within the system, not in blanket opposition for designation, but in responsible opposition to management applications we thought were detrimental. Perhaps we've enjoyed some success. At least there appears to be little doubt horses have a place in Montana wilderness. Opposition to the only positive alternative to roading and development while "hoping" to retain a little land for naturalness just doesn't make sense. It's kind of like scrapping our whole U.S. Constitution because we didn't like what some folks did at a place called Watergate. —*Roland Cheek, The Skyline Outfit; Columbia Falls, Mont.*

FROM SPLENDOR TO SQUALOR

Although it's a bit belated, I want to congratulate you on the wonderful article, "The Gallatin," which appeared in the Jan./Feb. 1975 issue.

Having married a girl from Bozeman, Mont. some 28 years ago, I am very much interested in the area. Visiting there with some frequency during the years has endeared the area to me.

When I recall the wonderful times I have had fishing and camping along the Gallatin River and its tributaries, it seems almost unreal at this distance. To let this area go from spendor to squalor would be terrible. We are spending our own inheritance when such areas are squandered without thought.

Should you ever be in ol' Kentucky, please let me know. I will show you how the famous "Bluegrass" region is suffering a fate similar to that so aptly discussed in the fine article.—*John W. Stevens; Lexington, Ken.*

EXCELLENT ARTICLES

We love your magazine. Please thank Ken Knudson for his excellent article, "Gardening Without Pesticides," in the July/August 1976 issue. Also, thank Bill Schneider for saying so much in so few pages ("The Great Container Controversy"). Hopefully, Montana and Washington can join Oregon, Vermont and South Dakota soon. — *Karen and Roger Jeffers; Clinton, Wash.*

MELITA ISLAND—SENSELESS WASTE

I am writing to express my concern over the future of Flathead Lake's Melita Island.

In my opinion—and there are others who feel as I do—development of this island would be a senseless waste of a unique environment. How much better if, instead of a private housing development, this island might be left as a natural area. It just doesn't seem necessary to use a beautiful piece of

continued

recycled paper

land like this island for summer homes when it would be so much better preserved and managed for use by the Boy Scouts and for other related purposes.

Can it be that, in our continuing pursuit of a higher standard of living for all, we need this island for housing? Will this benefit the general public or merely a privileged few? Aren't areas like this essential in maintaining a semblance of quality in our lives? Does a higher standard of living simply mean more material goods and summer homes or could it be that things such as Boy Scout camps, parks, wildlife and natural areas also are involved?

I think they are and I want to express my support to any movement directed toward saving this island from unwise development both now and in the future.—*Larry Martin; Deer Lodge, Mont.*

MONTANA'S DAYS ARE NUMBERED

I was very much impressed with the item on Chief Seattle in your March/April 1976 issue. Incidentally, your magazine is the finest of its type that I have ever seen. Indeed, I cannot recall at the moment any magazine of any type that is superior to yours in appearance and content.

I have had the privilege of spending two or three weeks over the last three years in Montana, with a native of your state. I can assure you that your concerns for preservation of your state in something like its present form, and your concerns for preservation of wildlife, are well taken. Absent a radical change in the ability of our population to understand the need for wild areas and wild game, as distinguished from condominiums and caged pets, I am afraid that the days of Montana as we know it are numbered.—*Hugh V. White, Jr.; Richmond, Va.*

SUPERHIGHWAY SHOULD BE SCENIC HIGHWAY

Having spent 21 years of my life prior to WW II on a ranch in Montana and now having ranch property to which I hope to retire, I anxiously await your next issue of *Montana Outdoors* to keep up acquaintance with the state that is dear to me. The articles and readers' comments on man's ravage of the beautiful Montana environment in the guise of progress are thought invoking and are the instigators of this letter about another despoiler of our environment in the guise of progress—the modern superhighway.

Specifically, because I am personally acquainted with the situation, I refer to the proposed four-laning of the stretch of U.S. 12 west out of Helena. The proposed four-lane superhighway with wide median strip will cut up already small farms in the Ten Mile Valley to the point where it will be impractical to any longer operate them as farms. The impact of the superhighway on the natural environment in this valley of small farms, neat residences and fishing and hunting opportunities can well be imagined.

The affected residents in the area, and most others who do not plan to gain financially by construction of the superhighway, are strong in their stand that if indeed a superhighway is needed going west from Helena to Missoula, it should be constructed as a scenic highway over the hills. This highway could parallel a hill route used years ago to cross the Continental Divide and where the railroad now goes. The Highway Dept. contends that any other route but down through the valley would be too costly, but how do we measure a one-time cost today against the cost of permanent impact on our environment—for which our children, their children and their childrens' children will have to pay and pay?

I hope this letter generates comments for publication or to me personally on how other nature lovers and environmentalists in the beautiful state of Montana and elsewhere feel about this problem.—*Art Grunenfelder, 39 Fairglen Dr.; Titusville, Fla. 32780*

CREATIVE CLEARCUTS?

As we all should know, a prime legislative and administrative concern with clearcuts is that they must not detract from "viewing significance." This means that what the touring motorist sees from the main highway cannot be impaired by those nasty, unsightly, rectangular blotches on the beautiful mountainside.

It is rumored out here in northwestern Montana that an insidious scheme is developing at the heart of the inner workings and hidden mechanisms of our federal forestry department and state government to skirt this sketchy policy of "viewing significance." Rather than hide it, the idea is to flout it.

The plan is to require all future timber sale purchasers to submit a nonrectangular clearcut mapping design to the Forest Service. This map for the shape of the clearcut must be approved by at least a GS-11 with a sub-designator of "artist." Each future submission for a clearcut will have to be aesthetically designed in a shape to resemble a true American symbol, i.e., the American flag with seed timber clumped where the stars should be and anti-erosion cultivation fashioned along the lines of the stripes, or an American eagle design with brush piles positioned where the eyes should be and waste timber scattered along the lines of the wings or a Playboy bunny with choice trees left for the eyes and reseeding implantation designated to shape the ears. Certainly we all should realize the potential for future artistic development in this area.

Won't it be nice to drive down the road and look up on the mountainside to see a clearcut outline of a grizzly bear covering 40 acres, designed by the artistry of a purchaser and approved by the resident forestry artistic expert? At last, "viewing significance" for the touring motorist. —*Aaron R. Spurway; Libby, Mont.*

PET PEEVE— SUN RIVER

I am a subcriber both to your magazine and to your views on keeping Montana beautiful for the people today and tomorrow. I very much enjoyed your articles on Wolf Creek Canyon.

I have a pet peeve and do not think I am alone. My problem is that I am really disgusted and amazed that the Sun River, which forms west of Augusta and empties into the mighty Missouri in Great Falls, has been changed from the "clearest, most beautiful stream we have ever seen" (from the writings of Lewis and Clark) to the most silt-laden, mucky river in this part of Montana. While I realize there are bureaucrats who are "looking into this matter," I believe the people who are interested in preserving our ecology should broadcast this ruination of a stream that still could be as clear as the one described by Lewis and Clark.

I think a series of articles on the Sun River by your magazine would focus much-needed attention on this subject. Let's stop the mud flow! — *Bob Neary; Great Falls, Mont.*

recycled paper

Where Have All The Deer Gone?

by Glenn Oakley

photo: Bill McRae

The hunter sat at the rough, wooden table sipping coffee to warm himself after hunting muleys all morning. A fruitless hunt. "Deer all gone," he says to his hunting buddies seated around the table. "Been hunting this country for 30 years and it's the worst I've seen. Know what did it? Just too many deer shot—does and fawns. Ain't enough does left to breed."

Well that's obvious, isn't it? Or is it?

True, deer populations, particularly mule deer, are down in Montana. In fact, deer populations are down throughout the entire western United States. But many factors, some perhaps too subtle to be readily noticed, affect the populations.

AN OBVIOUS FACTOR

Hunting is one of these factors and perhaps the most obvious. Also, it's the only one the department can fully regulate. This year will mark the most extensive buck-only season in Montana since the early 1950s. In 1976, either-sex hunting of deer was allowed only during the first seven days of the season in hunting districts 100-293. The general deer season, Nov. 1-Nov. 28, allows taking antlered bucks only. The number of nonresident hunters has also been restricted. This year, 17,000 nonresident combination deer, elk, bear, bird and fishing licenses were available at $225 each. Last year, 26,000 were sold at $151 each. One thousand deer-only tags were available to nonresidents through a drawing this year, compared to 2,000 available in 1975. Those drawn this year were limited to hunting in selected districts within a specified region. No hunter, nonresident or resident, could legally take more than one deer during the 1976 season.

One alternative to buck-only laws is permit-only hunting for either-sex deer. Some hunters find the either-sex permit objectionable because they regard shooting of does and fawns akin to child molestation, even though—biologically—doe and fawn hunting is sound game management. A stigma also applies to shooting bucks only; many hunters regard it as an old fashioned, outdated management concept.

With these more restrictive regulations, game managers hope to reduce the number of deer killed in some areas. But deer die of more causes than bullets and arrows. They starve. Predators eat them. Parasites and disease kill them. Trucks and

continued

cars run over them. And other unknown factors may influence deer populations. Hunting pressure undoubtedly has reduced deer populations in some areas, particularly in areas where escape cover is sparse. Restrictions will help in these areas. But in some other areas like the rugged and relatively inaccessible Bridger Mountains, total abolition of hunting would have little or no effect on the deer, according to Gene Allen, chief of the department's Game Management Research Bureau. Because winter environmental conditions are so severe, natural mortality exceeds or overshadows any effect of hunting in these inaccessible segments of the Bridger Mountains deer population.

Montana's liberal two-deer of either-sex hunting seasons are often blamed for the decline of deer. But as Allen noted, Montana has had liberal either-sex seasons for the past 20 years and it is only within the last few years we have experienced a decline. But now Montana is in the same boat with other states which never had such liberal seasons. In other words, Montana took advantage of high deer populations when we had them—many other states didn't.

No single factor can be blamed for the decline. It's due to a complex combination of factors—intensive agriculture, strip mining, subdivisions, predators and hard winters, among others. Even though some factors are natural and others are caused by man's intervention, they are often interrelated. The history of sagebrush eradication in Montana is a case in point. About 1.1 million acres of sagebrush in Montana has been plowed, chained, ripped, sprayed and burned, primarily by federal agencies such as the Forest Service and the Bureau of Land Management. The Soil Conservation Service has provided "technical assistance" for sagebrush control projects on private land. These attempts to increase grass production on range land for livestock kill sagebrush and associated plants, which also serve as forage and cover needed by deer, sage grouse and other animals. Also, over 500,000 acres, much of it winter range, has been subdivided. And thousands more acres is snatched from wildlife by highway construction and strip mines. On top of all this, agricultural use of Montana land has increased considerably in intensity.

NUMBERS AND ACCESS

To compound the problem, while deer habitat is decreasing, the number of deer hunters is increasing. The last 10 years has seen a 40% increase in deer hunters in Montana, from 106,180 in 1966 to 148,103 in 1975. In this same time span, hunter access has shrunk from an almost unlimited status to the present situation where about one-third of all private land is closed or severely restricted.

Yet, while many factors can be blamed for the decline in specific regions, nothing yet explains the general decline across the entire western U.S. Dr. Dick Mackie, leader of the department's statewide deer study, said the decline is so general and widespread "it would suggest there might be an overriding factor responsible."

Allen says the traditionally examined factors—predators, hunting, overgrazing, etc.—will have to be looked at in "a different way than we have in the past because the way we have looked in the past hasn't provided the answers." The answer to the deer problem may well lie in the traditional factors, he said, but "we may not be looking at them in the right way." He said, for example, it may not be that cattle remove important forage plants from deer range, but that deer prefer not to be near cattle and move away from them when they can.

The long-term, cyclic fluctuation of some animal species (which biologists don't fully understand) may also be a cause for the deer decline. The disease factor in reducing deer populations has been "almost totally ignored," Allen said. Stress, brought on by changes in livestock grazing methods, increased hunting and human contact may result in decreased reproduction among deer. Wide-scale climatic changes may also be a factor.

Mackie said the Missouri Breaks, where he has studied deer since 1960, has received progressively wetter springs and harsher winters since the 1940s. However, he said, the weather during the two weeks of fawning season could be more important than the general climate.

NO SURE ANSWER

"It could be" many things, but there is no sure answer because not enough is known about deer and their requirements. To meet this need, department biologists are studying four areas representing the major habitat types in Montana: (1) the coniferous forest of western Montana in the Swan Valley, (2) the mountain foothills of central and southwestern Montana in the Bridger Mountains north of Bozeman, (3) the river bottom and breaks of eastern Montana in the Missouri Breaks and (4) the prairie-agricultural land of eastern Montana near Terry.

Biologists are studying the population dynamics (observing the seasonal fluctuations in deer numbers, birth and mortality rates and why they fluctuate the way they do) and densities of deer in these various habitat types, their food and range use habits and such environmental factors as predators, land use, public access, climate and habitat quality and quantity.

Over 50 deer have been live trapped and equipped with radio collars. Adult deer have been collared in all regions, and in the Missouri Breaks fawns have also been tagged. Biologists track the deer and learn where they are feeding, what they are feeding on, how far they travel, in what kind of habitat—in short, how the deer interact with their environment.

Much tracking is done from the air and

biologists usually see the animal. If the individual animal's location can't be pinpointed exactly, its location can be narrowed to an area about the size of a city block. After the general location is found, biologists may go in on foot or by vehicle to examine the habitat, its type and condition. Studying deer with electronic tracking gear—telemetry—is only a "small part of the study," Allen said. But he said telemetry has provided information impossible to obtain any other way. "Telemetry is challenging many of the old theories," Allen noted. It has shown, for example, that deer travel in patterns that often appear erratic. "How do you explain," he asked, "why a deer moves 12 miles on one day in August, then a couple of days later moves back again. Before radios, we wouldn't have known such things happened."

Allen said deer are complex animals and their behavior is equally complex. "We don't even know why people do what they do and we can talk to them and ask them questions," he noted. Biologists can only study deer and suggest reasons for their behavior.

WHY DO DEER FAWNS DIE?

Biologists are also examining the factors which cause deer fawns to die. Fawn radios are equipped with temperature-sensing devices which cause a change in the transmitted frequency if the fawn's temperature drops.

When the frequency changes, biologists know the fawn has either lost the transmitter or died, in which case an autopsy can often reveal the cause of death. The tracking doesn't always go smoothly, though. A change in frequency may lead biologists to a fawn eaten by coyotes. It is then difficult to tell whether the coyotes killed and then ate the fawn or whether the fawn died of some other cause and was then found and eaten by the coyotes.

Road-killed deer are examined to determine their condition before being struck. During the gestation season, doe carcasses are examined for evidence of fetuses. Deer classifications are made from small airplanes and helicopters as well as from the ground. In these classifications, the ratio of does to fawns, among other things, is recorded. This ratio is an important indicator of how the herds are faring. Enough fawns must be born each year to replace deer lost to the myriad mortality factors including disease, predators, starvation, automobiles, hunters, etc.

FAWN PRODUCTION

Poor fawn production and/or survival is probably the greatest problem with most deer populations in Montana, Allen said. Mackie says that in the Missouri Breaks, 50 fawns per 100 does is about enough to sustain the herd, neither increasing nor decreasing the population. Over 50 fawns per 100 does results in a growing herd. The ratio depends on the habitat and other factors and thus varies from region to region. One goal of the study is to learn more about what determines the ratio and why it is different in the various habitat types across the state.

For 1977, researchers have proposed a study of deer/elk relationships. Elk populations have increased in some areas where deer populations have declined.

COYOTE STUDY

Although separate from the deer study, the department's coyote study will complement it. The department started the second year of the six-year predator study this fall. Researchers are examining three major areas: (1) west of Miles City, (2) the Bridger Mountains and (3) the Missouri Breaks deer study area.

This study, like the deer study, will attempt to learn what factors control coyote density and also the effect of coyote predation on deer herds. Five collared coyotes in the Missouri Breaks are being tracked to help gather basic information on coyotes.

Researchers estimate coyote populations by several methods. One technique is the scent post survey which involves dusting all animal tracks from an area and then setting scent in the center of the track-free ground. The site is checked periodically to see how many coyotes left their prints. This provides a rough estimate of the relative density of coyotes and is used to compare that site with others. Another method involves sounding a siren in the field. Coyotes will howl back in response, giving biologists a minimum estimate of the number of coyotes in the general area.

Coyotes killed by hunters and trappers are examined to determine age, sex, evidence of pups, etc.

Each of the three coyote study areas has been divided into two regions—a "control" area which is left undisturbed and a treatment area. In the treatment area, 50-100 square miles in size, an attempt will be made to kill all coyotes, primarily by trapping and aerial shooting. Biologists want to learn if fawn survival and deer populations will increase after extensive control of coyotes. If coyote control results in greatly increased big game numbers, one of the decline factors may have been determined. This does not necessarily mean the department will embark on a coyote elimination program. The studies are an attempt to better understand deer and how they relate to their environment. Most certainly, some management guidelines and recommendations will come from the study.

But the real future for deer lies not in strict bag limits or buck laws. These are temporary stopgap measures. The real future lies in responsive and sensitive management, continued research and habitat protection.

A century ago, a miner could find a vein of gold, place a few wooden posts at the corners of the site, sign his name at the local courthouse and start digging and blasting away at the hillside. When the miner dug out all the ore, he often walked away, leaving the spoils where they lay, the ground torn open and the streams running with acid.

Many state laws have been written recently to govern reclamation procedures and control mining. Encouraged by a national mining law written 104 years ago, a cyanide leaching plant and mining operation sprang up unnoticed last summer, near upper Rock Creek, close to Missoula, Mont. By the time state and federal authorities learned of the leaching operation, leaching pads were already under construction, less than 30 feet from Sluice Gulch. One and a half miles later, Sluice Gulch flows into the blue ribbon trout waters of Rock Creek. Cyanide is one of the deadliest compounds known to man. An accidental leakage of cyanide into Sluice Gluch would reach Rock Creek in under two hours, poisoning aquatic insects, fish and anything that drank the water including wildlife, livestock and people.

Cyanide is used to extract the minute particles of silver and gold from the mined rock. Usually, the mineral-bearing rock is finely crushed in a mill into sands and slimes. These sands and slimes are then doused with a cyanide and water solution and the solution picks up the silver and gold as it percolates through.

B. Dale Fayram, the mining contractor, plans to build two 35 x 50 asphalt pads. Some 650 tons of ore would be placed on each pad and doused with the cyanide solution. Drains in the center of the pads will collect the silver- and gold-bearing cyanide solution and pipe it to steel holding tanks. From the holding tanks, the solution will be piped into a shed where the silver and gold will be removed from the solution on activated charcoal beds.

Fayram, of Calgary, Alta., assured, "We're not trying to hide anything." However, news of the mine came as a big surprise and shock to the Bureau of Land Management (BLM), which has jurisdiction over the land on which the operation is located; the Dept. of Health and Environmental Sciences, responsible for protecting the waters of Montana, and the Dept. of Fish and Game, responsible for the fish and wildlife which could be threatened by the proposed plant.

Yet, even when these agencies learned of the operation, little could be done. Leonard Rice, who says he bought the Silver King Mine and claim from Bill Byam of Philipsburg, qualified for a small miner exclusion permit. (Byam maintains he only leased the claim to Rice and he is still the owner.) Because Rice promised (1) to mine under

Rock Creek. F&G photo: Rocky Rothweiler

THE ROCK CRE

EK MINE

by Glenn Oakley

100 tons of ore a day, (2) not to pollute any streams and (3) to put a door on the mine entrance, the Dept. of State Lands was required by law to issue him a permit. As a small miner, Rice can mine five acres of land with no obligation to reclaim it. He can disturb over five acres, but any additional land must be reclaimed. The small miner is protected by a confidentiality clause which prohibits the Dept. of State Lands from telling anyone anything about the mine except the claim owner's name and the county in which the claim is located.

If a state lands official divulges confidential information to anyone (other state agencies included), such as exact location of the mine, address of the owner or type of ore being mined, he is subject to a $1,000 fine.

The Dept. of State Lands was the only regulating agency the mine operators contacted to obtain the exclusion. State lands officials report they were unaware of the cyanide leaching plans. Under state law, this department has no control over mills or refining operations.

During the last week of July, ranchers, concerned about possible cyanide contamination of Rock Creek and wells, called the health dept., the Dept. of Fish and Game and the BLM to inform them of the operation. All these agencies sent representatives to inspect the operation.

On July 30, Steve Anderson, state lands mine inspector, examined the mine for the first time. (Mines must be inspected at least once a year.) Anderson's inspection consisted of estimating the size of the mine area to make sure it was under five acres, estimating the daily tonnage production of the mine (which is "pretty hard," he said), looking for any water discharge which could pollute Sluice Gulch and checking for a door on the mine entrance. He did not enter the mine and said he usually doesn't.

Ken Knudson, Dept. of Fish and Game pollution control biologist, visited the site the same day and found the leaching pads dangerously close to Sluice Gulch with little protection to prevent leakage of cyanide into the creek and eventually into Rock Creek.

With news of the proposed plant came public furor and Fayram called a press tour to dispel fears of pollution to Rock Creek. Fayram assured a skeptical group of ranchers, "There will be no mill." But Rice later contradicted Fayram saying, "The long-range plan is to put in a mill if they'll let us." The mill would probably be built a few miles from the streams, he noted. In addition, Arnold Silverman, professor of geology at the University of Montana, termed Fayram's claims "absurd . . . you just can't cyanide leach big chunks of rock." Fayram said he can leach rocks 2½ inches in

continued

diameter. He said larger rocks will be broken by hand with a sledge hammer. This would be a rather slow and unconventional method, to say the least.

Furthermore, Robert Peele's "Mining Engineers' Handbook" states a crusher (which is a mill) is required to grind the ore to leachable fineness. Peele wrote, "In exceptional cases of very porous ore, satisfactory extraction can be made by percolation from sands as coarse as 0.25 inches."

Fayram also assured the group the cyanide and water solution is so weak, "a dog could swim in the solutions with no ill effects." "But could a fish?", someone asked. "Yes," replied Fayram, although he didn't know what concentrations of cyanide would kill fish. Fayram said "only one to two pounds of cyanide" would be used per ton of water.

One pound of cyanide to a ton of water makes a concentration of 480 milligrams (mgs) of cyanide per liter of water. Two pounds of cyanide doubles the concentration to 960 mgs per liter. (A milligram is roughly equal to 1/30,000 of an ounce.) Solutions of only .05 mg of cyanide per liter of water killed brook trout within 96 hours in toxicity tests. In solutions of 1 mg of cyanide per liter of water, trout died in 20 minutes. Obviously, no fish could swim for long in the "weak" solution Fayram plans to use. Even with further dilution in Sluice Gulch, the concentration could easily equal levels deadly to fish: If the creek were flowing at 15 cubic feet per second (15 *times* its normal summer flow), and the 41,000 gallons of solution the system will hold leaked into the creek, in 20 minutes the cyanide concentration throughout one-half mile of stream would be from 0.7-1.4 mg per liter of water—well within the total toxicity level to trout for that time period.

What about spring run-off? Bob Neal, who holds grazing rights to the land where the mine is situated, said the entire area of the proposed leaching site was under water last spring. What will keep the system "closed" then? And won't the asphalt crack during the winter freezing and spring thawing?

Fayram said he will not operate in spring or winter so there won't be any cyanide on the pads during run-off. Water will be left on the pads in winter, he said, and the cyanide will be oxidized to a harmless compound.

There was also concern about the holding tanks leaking, the leached tailings seeping cyanide into the stream and other accidental disasters.

Fayram said he would make sure no cyanide would leak out because loss of cyanide would mean loss of silver and gold—money. Likewise, oil companies cannot afford to dump fresh oil into the oceans, but it happens.

Fayram noted leached tailings will be washed with water to remove cyanide and replaced into the mine for support, a process known as cut and fill mining. To prevent flash flooding, he said he will build a diversion dam upstream from the leaching pads.

Water, though, is what the operation lacks. The operators have neither water rights nor a well, although they are drawing water for domestic use from a diversion in Sluice Gulch.

Fayram had answers for many questions. Some of his answers, like the harmlessness of the cyanide solution, were inaccurate. Others, like his proposed cut and fill mining, can't be done just anywhere. It *may* work here, but regulating agencies, with little control over the operation, must take such promises at face value.

Under mining laws, asking questions and accepting the answers is about all that can be done—until a disaster occurs.

Since the press tour, Fayram has proposed another "fail-safe" method to prevent cyanide from leaking into the creek. Fayram said he will have five pounds of ferrous sulfate in a pressurized vessel next to the holding tanks. In case of a disaster, he explained, someone will "turn the valve and kill the entire system . . . it will take one minute at the outside." Ferrous sulfate renders cyanide harmless.

If there is to be a cyanide leaching plant up Sluice Gulch, back-up systems like the ferrous sulfate will be necessary. But these safety measures should have been developed before construction began—not several months later to appease the press and local residents.

By the very nature of the small miner exclusion, permits and the accompanying environmental impact statements are often not required. To obtain the exclusion permit, the miner must promise not to pollute. Montana water pollution law makes it illegal not only to cause water pollution, but to place "wastes in such a location where they are *likely* to cause pollution" (emphasis added). The Silver King Mine operation may fall under this provision. But as Jim Brown, public health engineer for the Water Quality Bureau of the health dept., said, "We almost have to wait 'til they deposit the waste" before the department can act.

But the health dept. may not even know of mines which do—*or could*—pollute. Even the Dept. of State Lands admits it doesn't know about all the mines in Montana. According to that department, about 900 small miners are licensed in Montana. But, said C. C. McCall, administrator of the Reclamation Division of state lands, "There's probably a lot out there we don't know about." The Dept. of State Lands has only four inspectors to monitor over 1,000 hard rock mines in the state. Until 1972, there were only two hard rock mine inspectors.

What if the mine inspector suspects a small miner is polluting a nearby stream? McCall said inspectors are not equipped to test for pollution—that task is left to the Water Quality Bureau. The catch is: The Dept. of State Lands is forbidden by the confidentiality clause from telling the Water Quality Bureau where the mine is. "It's a catch-22," McCall said.

If the Water Quality Bureau is informed of the suspected violation and the miner is, in fact, polluting, no further problems ensue. If the inspector is wrong and no pollution is occurring, McCall said, "The confidentiality clause could rear its head." However, if information about a possible violation comes from an independent source, such as the ranchers who called in complaints about the Silver King Mine, then the Dept. of State Lands can legally release that material, McCall said.

Fayram also failed to notify the BLM or Neal that he was staking mineral claims on their lands. Fayram secured an additional 40 claims in the name of Leonard Rice's brother, Millard, many on Neal's privately owned land. Staking claims is perfectly legal, even on land where, as in Neal's case, the surface rights are privately owned. (The federal government retains the mineral rights to much of the land in the West and has the right to sell or give it away.)

But the Landowner Notification Act of 1971 says the miner cannot "disturb" the land "in any manner" until the owner is given written notice of the miner's plans, including "measures for the protection and restoration of the land and waters."

It is generally thought that the staking of claims, unaccompanied by surface disturbance, does not require any notification to the landowner. However, this notification would be required before any substantial work of either assessment or operation was actually begun. This interpretation has never been tested in court.

Controlling agencies of public land—usually the Forest Service or the BLM for mineral claims—rarely know when claims are made on their land. Claims are filed in the local county courthouse and are not generally relayed to the owner agency.

Perhaps the biggest legal question in this matter is not whether Neal or the Mining Enforcement Safety Administration was properly notified, but whether the small miner exclusion itself is legal. That anyone can ravage five acres of land and leave it unreclaimed flies in the face of the 1972 Montana Constitution. Article IX, Sec. 2 of the constitution states: "All lands disturbed by the taking of natural resources shall be reclaimed. The legislature shall provide effective requirements and standards for the reclamation of lands disturbed." It may take a court case, however, to enforce this constitutional provision.

There are probably two types of people using the small miner exemption. The first group includes those individuals working discoveries they have legitimately made, financed and bankrolled by little more than their own sweat and muscle. Their entire operation is modest and their impact on the environment is minimal. They are, in fact, the people the small miner exemption sought to accommodate. The second group encompasses those individuals using a legitimate legislative concern for small miners as a loophole to evade regulations. There's no doubt that "big companies operate under small miner exclusions," McCall noted.

In the case of the Silver King Mine, who is the small miner? It is Leonard Rice, head of Len Rice Engineering; Calgary, Alta. Rice said the corporation is "involved in construction and mining in Canada." He said he is a U.S. citizen and owns the mine privately; his corporation has nothing to do with his mine.

Rice does not mine at the site, but rather has hired a professional mining contractor to do it for him. He didn't even apply for the small miner permit himself—an agent applied for him. For several weeks, neither the BLM on whose land he is mining, nor Fayram, who works for him, knew how to find Rice.

Rice also maintains the cyanide solution is harmless. "You could dump it in those creeks and not hurt anything," he said. However, he admitted, "I'm not familiar with the actual strength of the solution."

Plans for the leaching plant had been postponed until plans were worked out between a metallurgical consultant working for Fayram and the health dept. Mining for sulfides which are associated with the silver and gold was to continue. These sulfides would be shipped to the American Smelting and Refining Co. (ASARCO) smelter in East Helena for refining.

Yet when representatives of the health dept. and a lawyer from the governor's staff went to the mine site Aug. 30 to make sure no more work was being done on the leaching pads, Byam met them—with a D-8 bulldozer. Reportedly, Byam saw the men coming and drove the bulldozer onto the road, lowered the blade and ordered the inspectors to leave.

Byam told them he owned the mine, not Rice. Fayram and his men were nowhere in sight. The leaching pad site is about one mile from the mine and the inspectors were unable to see the pads. An official at the health dept. said because it is not known who actually owns and operates the mine, injunctions to halt construction of the leaching pads may be served on all parties involved with the operation.

Before the leaching plant construction was postponed, the health dept. was preparing to start proceedings to secure an injunction to halt construction.

Gov. Thomas L. Judge reported, "The Dept. of Health and Environmental Sciences was prepared and will remain prepared to take court action to enjoin any mining operation that may jeopardize Rock Creek." He added, ". . . we are prepared to challenge any activity which entails significant risk to Rock Creek. . . ."

This is reassuring. But what remains to sour this hope is the shroud of secrecy, reinforced by law, which surrounds mining. If such an operation as the Silver King Mine could go undetected for so long, just a mile and a half from the popular and heavily used Rock Creek, what could happen (or is happening) in other recreational areas?

Will elk continue to thrive in the Elkhorns? Or, will their numbers dwindle after extensive logging and related development? photo: Harry Engels. Tizer Station (right), a historic ranger station in Tizer Basin, the heart of the majestic Elkhorn Mountains. F&G photo: Bill Schneider

THE ELKHORNS:
historic playground becomes modern-day battleground

by Bill Schneider

The Elkhorns seem to float along the edge of the Missouri River Valley near Helena, much like a giant, forested iceberg. And this little jewel of a mountain range has raised an issue that could appropriately be called "the tip of the iceberg."

Until recently, most people drove past the Elkhorns with only a glance. Strangely, few even knew the name of these majestic mountains. But

continued

no more. The press has extensively covered the Elkhorn controversy in the last few months. And this, too, is only the tip of the iceberg. Formerly west central Montana's "secret" wilderness, the Elkhorns may become another household word statewide—like "Colstrip"—before opposing sides holster their guns in what surely will be a long lasting shootout over public land management. What started as a local controversy over building one logging road has evolved into a very important, and long overdue, public debate over planning in the national forests.

Historically, the Elkhorns have gone from exploitation to neglect. Around the turn of the century, several mines and mining towns flourished there. But these early miners weren't known for their environmental awareness, to say the least, as evidenced by Montana's many century-old mining scars. The forests around early mining towns in the Elkhorns were sometimes completely removed. Elk and other big game animals were exterminated. And some streams ran red with acid mine drainage.

Before long, the mines closed. The boom towns became ghost towns. And civilization forgot the Elkhorns. Nature reclaimed many of the scars, purified the streams, closed many roads and reforested the slopes. Elk and other big game animals prospered. The Elkhorns were wild once again.

Today, the area hosts a productive elk herd; good moose, mountain goat and black bear populations, and fair numbers of other game and nongame animals. In addition, several mountain lakes and streams offer excellent trout fishing.

This provides quality recreation for many persons from relatively close-by urban areas (Helena, Butte, Bozeman). Recreationists also come from far away to enjoy the area.

But it won't remain so—*if* the current Forest Service (FS) plan matures to reality. On June 16, 1976, the Helena National Forest released a final environmental statement for the Elkhorn Planning Unit. It calls for extensive logging, roading and campground development within the about 80,000-acre essentially roadless area (one very poor jeep road extends into the area from the west) in the center of the mountain range. Once again, the pendulum is swinging from wilderness to exploitation.

Such final statements are always preceded by a draft. The draft of this plan was released on April 10, 1974. However, the draft statement didn't raise many eyebrows—for a good reason to be explained shortly. Still, 90% or more of the public comment ran against any additional roading. All comments on wildlife followed the same tune—protect this resource and maintain quality hunting and fishing.

The scant response on the draft environmental statement is understandable, though. The draft did *not* specifically mention a road going into the middle of the Elkhorns from the east to connect with the existing jeep road from the west. (This would create a "loop" road through the entire range.) So, sportsmen and other concerned citizens could hardly comment on it. However, this significant proposal was specifically outlined in the final statement.

This shams the public involvement process, as outlined by the National Environmental Policy Act (NEPA). First, the FS chose to ignore the public mandate—no more roading—expressed in the official record of the draft statement. Worse, the agency made a major land use decision in the opposite direction of the majority public opinion. The decision—which came out as a *final* plan—to extend the road into the heart of the Elkhorns was not only against public sentiment, but it occurred without public knowledge.

And people don't like it. As of Sept. 15, 1976, 243 angry letters and post cards and 5 petitions with 97 signatures had poured into FS offices opposing the final plan. Only 26 letters came in supporting the action, many of them from representatives of the wood products industry. This public concern was soon reflected in the local media. News stories, editorials or letters to the editor appeared almost daily all across the state. Both major dailies in the area—the Independent Record in Helena and the Great Falls Tribune—took strong editorial stands against the FS proposal.

As this controversy started mushrooming, FS officials began claiming they had not reversed or strengthened their opinion on roading the area in the interim between the draft and final statements. The road was included in the draft statement, they noted. People just didn't see it.

Helena National Forest Superviser James R. Jordan told *Montana Outdoors,* "I definitely feel that the draft statement implies that there is a need for a road into the Tizer Basin [the center of the Elkhorns]." To justify this, Jordan points to one sentence in the draft statement: "Plan and develop a system of roads to support the management direction." And, he reminds, management direction was intensive timber removal.

However, conservationists (who were aware of the sentence) say it was so general it could mean almost anything. Why then, they ask, did the final statement specifically say a good, all-vehicle road (Crow Creek Road #424) would be extended into the heart of the Elkhorns? The draft proposed a small extension to the south into Blacker and Warner creeks. But it didn't say one word about extending this road west into the very heart of the mountain range (Tizer Basin).

In frustration, 13 sportsmen's and environmental groups filed an administrative appeal asking the FS to reconsider its decision. That appeal is still pending.

Citing violations of NEPA and other laws, the groups refused to accept Jordan's explanation of the discrepancy between the draft and final state-

ments. "The most serious violation of NEPA is the insertion of the proposed extension of the Crow Creek Road (#424) into Management Unit 5 (Tizer Basin) without first including this major federal action in the draft statement for public review and comment," the citizens wrote in the appeal. "Since this major feature of the Elkhorn plan has never before been presented to the public in draft form for comment, the present FES [final environmental statement] violates NEPA and must therefore be redone and circulated to the public in the form of a draft environmental statement."

The Dept. of Fish and Game sent two letters on the Elkhorn plan to the FS. In both, Region 3 (Bozeman) Coordinator LeRoy Ellig requested the alternative with the least possible roading because this is "superior" for wildlife. Likewise, many others specifically commented on the wildlife impact. Of these comments, *everybody* wanted this resource protected. *Nobody* asked to have this resource compromised to benefit timber production. Yet, the FS picked an alternative with extensive roading and logging which will be detrimental to wildlife. Addressing this in the appeal, the appellants asked, ". . . what purpose does the public involvement process serve if the agency goes directly against clear public mandates?"

On Aug. 19, 1976, this debate found its way into the monthly meeting of the Montana Fish and Game Commission. Representing the citizens' groups appealing the FS plan, Bill Cunningham asked the commission to join the appeal because of the plan's adverse impact on wildlife. "This is the place to hold the line," Cunningham remarked. "This is an appropriate place to break the pattern—where the department makes every effort to comment on a plan, and then the FS goes its own way anyway."

He read the department requests for no additional roading, which were ignored by the FS, and noted there wasn't a wildlife biologist on the planning team that wrote the plan.

"It's the old trick," Cunningham complained. FS administrators pick their preferred alternative. Then, they select two extremes, one on each side. When the public comments are in, they take the middle alternative—"which is, of course, what they wanted anyway." Supporting this, Cunningham documented that the FS had planned timber sales in the area long before the unit plan was released.

He asked, "Has the agency already made up its mind and now simply goes through the procedural process of justifying the decision? The Dept. of Fish and Game has been included only for superficial credibility," Cunningham concluded.

Apparently convinced, the commission decided to protest the FS plan in a continued attempt to maintain quality wildlife populations in the Elkhorns.

Ed Schneegas, director of wildlife and fisheries for the Northern Region of the FS, also attended the meeting. Disagreeing, he said, "We don't quite feel that way about it." Schneegas described this as one of the FS' best land use plans as far as wildlife was concerned. "It sets a pretty high standard for the plans to come out later," he said. He also noted that all department recommendations were incorporated into the final plan. "The wildlife parts are vastly improved," he emphasized.

Schneegas is referring to specific department recommendations such as (1) not logging in two adjacent drainages at the same time to provide security for elk, (2) avoiding elk calving areas in the spring and (3) fencing stream bottoms. Commendably, these suggestions were included in the final statement. However, a major department recommendation—reduced roading—was rejected.

Admittedly, it's difficult to precisely predict the impact of such a proposal on wildlife. But it certainly won't be beneficial.

It comes to the far-too-frequent dilemma faced by wildlife professionals. They prefer to reserve detailed comment until they have biological facts. But in the meantime, the development proceeds. And after it's too late to do much about it, the area's wildlife populations start dwindling. Then, to maintain stable populations, wildlife managers must cut back the amount of hunting opportunity by restrictive regulations—fewer either-sex permits, shorter seasons, etc.

The FS plans detailed studies before developing the Elkhorns. This will help accumulate the kind of information on which professionals base their conclusions.

Unfortunately, these studies will occur *after* the *final* plan has been approved. Thus, the management direction for the Elkhorns—timber removal and motorized recreation development—will be

continued

MINI-EDITORIAL

In the Elkhorns, the Dept. of Fish and Game and the Forest Service have major disagreements on the management direction and its impact on wildlife. However, this is not the case in other situations.

The two agencies have been able to work as a team in many instances. Two notable examples are the recent purchase of the Mount Haggin Ranch near Anaconda and the ongoing elk-logging study.

Such cooperation is, of course, essential tc perpetuate wildlife in the national forests. Each agency has its separate public responsibilities and legal and established mandates under which to operate. There are—and will continue to be—instances such as the management plan for the Elkhorns where differing philosophies cannot be reconciled and professionals in each agency remain opposed.

Nonetheless, we want readers to realize that this does *not* represent the typical relationship between the department and the Forest Service. A list of examples where agency cooperation has been excellent is long and will continue to grow.

mandated without first obtaining the necessary facts. Later studies will only accommodate the predetermined management direction. Although frequently asked to do so, the FS has so far refused to wait with the final plan until the studies are completed.

Wild animals like elk can't adapt to serious changes in their environment. Rapid increase in resource extraction and mass recreational use often bring declines in elk numbers. If the FS plan goes through as presently written, quality elk hunting in the Elkhorns may become history—much like the abandoned mining towns. And there would be no chance to go back and correct the mistakes.

Changes in elk habitat degrade the quality of hunting and, eventually, recreation potential is reduced. For example, when prime elk habitat suddenly is subjected to extensive roading, whether due to logging or some other form of land use, the recommended hunter harvest of elk from that particular area occurs in a shorter time. This means the department's bag of management alternatives is continually reduced. It becomes tougher and tougher to manage elk in such situations and retain something which resembles a quality experience for hunters.

Although the plan frequently mentioned wildlife problems, it never addressed the impact of increased human use. Yet, the proposal would undoubtedly bring in many more people and vehicles which traditionally hurt big game populations. Also, easy access will encourage subdivision and other development of small private inholdings within the national forest.

Before long, Montana's congressional delegation started receiving loads of mail on the controversy. This prompted Rep. John Melcher (D-Mont.), chairman of the House Subcommittee on Public Lands, to call a public hearing in Helena on Sept. 6, 1976.

At the hearing, most of the approximately 200 participants objected to the Elkhorn plan. The plan won support from the timber industry, the local Chamber of Commerce, the Broadwater County Commission and a few more. All others opposed it.

"One might come to the conclusion in reading this report [the final environmental statement] that our participation represents adequate representation of the wildlife resource," Dept. Director Wes Woodgerd testified. "I am here to tell this subcommittee today that that is not the case, that our personnel repeatedly advised the U.S. Forest Service that the wildlife inventories of the Elkhorn Mountains were inadequate for planning purposes and our participants in this study repeatedly offered recommendations and suggestions for the protection of wildlife. These recommendations were rejected." continued

Crow Creek Falls (left) and beautiful Tizer Basin. Will it always be? F&G photos: Bill Schneider

Most serious, though, the entire Elkhorn debate merely represents, as previously noted, "the tip of the iceberg." Montana has 10 national forests. These, in turn, are split into 149 such planning units. If this means the planning process displayed in the Elkhorns is being repeated 148 times, it seems scary—especially since the FS calls the Elkhorn plan one of its "best."

The Wilderness Society took a close look at the situation on Montana's 149 planning units and discovered some startling statistics. To date, 46 of the final environmental statements have been filed with the President's Council on Environmental Quality, as required by NEPA. These 46 planning units contain about 1.5 million acres of roadless land—*de facto* wilderness, land containing wilderness qualities but not officially designated wilderness (like the Bob Marshall or Gates of the Mountains). Of this, 554,350 acres has been destined for development. The remaining million acres of wild land in the 46 units remains unprotected from commercial development, according to The Wilderness Society.

If someone proposed developing 554,350 acres of Montana's roadless country in one bold statement, there would be a giant backlash, no doubt. But through the piecemeal planning process, *it happened.* And very few Montanans even knew about it.

Montana's wild heritage is slipping away unnoticed. The reason, of course, is the same unresponsive planning displayed in preparing the Elkhorn plan.

The FS isn't entirely to blame. The federal agency is required to plan the national forests. And such long-term planning is essential. But to borrow an adage, "There must be a better way." The present procedure makes it difficult, at best, for people to follow or indeed, even understand, what's happening to the national forests—*their land.*

There are so many planning units, an individual can't adequately cover all environmental plans. (The Helena National Forest released three within one month this summer.) Worse, they are long, general, confusing and boring. "They all look alike," Cunningham complained, "and they put you to sleep."

People making a living from national forests normally play a major role in public land use policy. They devote more time and energy to tailoring the plans to meet their economic desires.

But what about the ordinary "man on the street," the recreation minded person, who undoubtedly typifies the majority? His interest is mostly recreational. He goes hunting or hiking there a dozen times each year. And that's about it. Most likely, he has a full-time job and other obligations.

To follow the public involvement process to its conclusion, he has to stick with it for several years—for each plan. Luckily, many do indeed endure the process. But their ranks are dwindling, primarily because so much of their effort goes fruitless.

When commercial interests dominate public comment, the FS often opts for development. On the rare occasion (i.e., the Elkhorns) when the conservation message comes through loud and clear, the final plan still remains commercially oriented. And frustrated conservationists walk away muttering something about, "What's the use?"

Eventually, future plans proceed with less public comment from individuals. But commerical interests remain active. Montanans should be thankful for the opportunity to help plan public land management. However, though, the system gradually wears down and frustrates concerned citizens with meaningless generalities meant to explain a seemingly endless planning maze.

Surely, people would remain active—*if* they were convinced their sincere efforts meant anything. They can comment and comment, over and over and then with dismay watch the agency go its preferred route regardless of public sentiment. In a word, it's a folly.

This has often resulted in citizens' groups going to Congress for the reprieve denied them by their agencies. With the Elkhorns, the central core of the mountain range was included in the Montana Wilderness Study Act, S.393, introduced by Sen. Lee Metcalf (D-Mont.). This would require the FS to do a complete wilderness study before deciding what to do with these roadless lands. (S.393 passed the Senate, but died in the House when the session ended Oct. 2, 1976. Sen Metcalf plans to reintroduce the legislation when the next Congress convenes.)

The Elkhorns controversy reveals the shortcomings of the FS planning process. But can it be improved? It can. And indeed, it must be. The FS' basic format is probably okay. However, some things must change. The FS must:

- Establish specific, meaningful policies that dictate conservation and protection of public resources to guide the preparation of land use plans.
- Write precisely so people can understand the plans.
- Give the public a *choice* of alternatives, instead of allowing people a chance to comment on the FS' selected alternative. For example, the Elkhorn *draft* environmental statement started out by saying, in essence, here is the *"selected"*—not "proposed" or "recommended"—alternative. Then, the agency went on to explain it.
- Assign roadless land the highest priority. About 98% of the U.S., excluding Alaska, is already roaded, so remaining wild lands must be protected.
- Invalidate the five-year timber cutting plan during the planning process instead of trying to incorporate it into the plan. This automatically biases the plan toward timber development. It also

sets up charges of already having the decision made before the plan was written.

- Consider wilderness a multiple-use area and abandon the single-use interpretation commonly employed by the FS.
- Listen to concerned citizens in their pleas for protecting public values. When there is an obvious outcry, as in the Elkhorns debate, yield to it.
- Fairly represent the public comment. When the call for public comments went out on the Elkhorn draft environmental statement, 29 persons wrote letters. Most of these—90% or more—requested no additional roading and wanted the wildlife resource protected. However, the FS "highgraded" the letters by listing *any* favorable comment, even a casual introductory statement. This misinterpreted public sentiment. The agency found 19 comments in favor—"agrees with the proposed action"—and only 8 disagreeing with it. However, many of the favorable comments, as interpreted by the FS, came from letters generally opposed to roading and destruction of wildlife habitat. Incredibly, 7 of the 19 favorable comments came from *one* letter from The Wilderness Society. The same letter stated the organization was "most strongly opposed" to additional roading and very much in favor of maintaining a large roadless area in the Elkhorns. However, only one of the many critical statements in the lengthy Wilderness Society letter *was* included in the analysis of comments "disagrees with the proposed action."
- Include recommendations of professional wildlife managers in these plans, especially the major requests such as no more roads in the Elkhorns.
- Either include wildlife biologists on the planning team or incorporate the opinions of qualified professionals outside the agency—i.e., Dept. of Fish and Game biologists—into the plan.
- Consider the economic value of wildlife, hunting, watershed, solitude, clean water, etc.
- Keep in mind that public land management decisions often profoundly affect development of nearby private land. For example, building a good access road into formerly roadless land opens up possibilities for development on private inholdings within the national forest.
- Don't make major decisions without public knowledge and comment. If any new actions are proposed, this should go back to the public in draft form. It must not come out as a final plan.
- Complete all studies before the planning process begins.
- Include all contiguous roadless land within a mountain range in a single planning unit. The Elkhorns wild area is split into three planning units.
- Condense the planning process—or hurry it up—as much as possible. As years drag by, people find it hard to maintain interest.
- Schedule release of these plans so the public isn't inundated with so many within a short period.

Hopefully, the FS will reconsider its plan for this scenic, wildlife-rich region. At the same time, the FS should learn from the many errors made in the Elkhorn plan. Perhaps this could help FS planners improve the entire planning process for the remaining 103 planning units. Then, and only then, will public resources like wildlife have a safe place in the national forests.

FS AND LAND USE PLANNING

As noted in the above article, land use planning is hardly restricted to the Elkhorn Mountains. It is an ongoing process covering all national forests. The Elkhorns situation wasn't specifically mentioned by Keith M. Thompson, director of the Resource Planning Group for the Northern Region of the Forest Service, in his article in the Winter 1976 issue of Western Wildlands, *the quarterly publication of the Montana Forest and Conservation Experiment Station. However, his article applies to the Elkhorn situation.*

Because of space limitations, we can't reproduce the entire article. However, we thought some excerpts would be interesting after reading about the Elkhorn debate. We recommend reading the entire article. — Ed.

- Exercise of the people's choice is also a vital element in land use planning for national forests.
- It is important to remember that a bad decision may result from a good process, but a good decision seldom results from a poor process! A planning process cannot be applied in a vacuum . . .
- The planner needs to know what resources are available for present use and how much of these resources can be produced at different points in the future. Specific information about the land must include the types and levels of use that can be sustained over time, how these uses relate to each other and where the various uses can be accommodated on the land. In addition, the planner must know enough about the total ecosystem—including man and land—to assess the short-term and long-term consequences of the plans.
- The welfare of all segments of the public ought to be given equal consideration in planning.
- Citizen involvement is essential in establishing realistic and effective objectives.
- The greatest practicable latitude for future action should be maintained. Other things equal, those planning directions should be favored that leave maximum room for maneuver in the future. The reversibility of an action should be counted as a major benefit, its irreversibility a major cost.
- Planning is for people. People have a right to be involved in decisions affecting public land. Forest Service policy is to help people have an effective voice in planning.
- Foreclosing future management options must be avoided where practical, particularly when high values are involved.
- Plans must be based on knowledge of land and people's needs for its resources.
- All values and points of view must be given due consideration in analyzing information and in defining alternative management strategies.

WHAT DEER EAT

—see page 19